

**AMENDMENT 1  
TO THE  
PROFESSIONAL SERVICES AGREEMENT  
FOR  
AIRFIELD ENGINEERING DESIGN SERVICES**

This Amendment 1 (“Amendment”) to the Professional Services Agreement for Airfield Engineering Design Services is made and entered into by and between the **CITY OF SAN ANTONIO** (“City”), a Texas home-rule municipality, acting by and through its Assistant City Manager and **KIMLEY HORN AND ASSOCIATES, INC.** (“Consultant”), acting by and through its authorized officers.

WHEREAS, in June 2022 through Ordinance No. 2022-06-23-0522, the City approved the Professional Services Agreement for Airfield Engineering Design Services (“Agreement”) between Consultant and City; and

WHEREAS, this amendment adds additional scope consisting of the following: specialized modeling for evaluation of phasing and impacts, drainage analysis, and aerial survey; and

WHEREAS, this amendment also reallocates work and funding between previously established phases of work; and

WHEREAS, the not to exceed contract amount is hereby increased by \$1,411,469.00 from \$10,444,796.00 to \$11,856,265.00;

NOW THEREFORE, in consideration of the terms, covenants, agreements and demises herein contained each to the other given, the sufficiency and receipt of which are hereby acknowledged, the Agreement is amended as follows:

1. **Article II Compensation.** The not to exceed total compensation for all work to be performed by Consultant set out in Article 2.1 of the Agreement is hereby increased by \$1,411,469.00 to a total not to exceed amount of **ELEVEN MILLION, EIGHT HUNDRED FIFTY-SIX THOUSAND, TWO HUNDRED SIXTY-FIVE AND 00/100 DOLLARS (\$11,856,265.00)**.
2. **Exhibit A Scope of Services.** Exhibit A Scope of Services of the Agreement is hereby deleted in its entirety and replaced with the Scope of Services set out in Attachment 1 hereto.

Except as amended hereby, all other provisions of the Agreement are hereby retained in their entirety and remain unchanged.

*----Signature on the following page----*

**EXECUTED** and **AGREED** to as of the \_\_\_ day of \_\_\_\_\_,2023.

**KIMLEY HORN AND ASSOCIATES, INC. CITY OF SAN ANTONIO,**

By: \_\_\_\_\_  
Kory Andryscik

Digitally signed by Kory Andryscik  
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o=Kimley-Horn and Associates, Inc.,  
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Date: 2023.02.02 13:56:18-07'00

Kory Andryscik  
Printed Name

Vice President  
Position

02/02/2023  
Date

By: \_\_\_\_\_  
Jeff Coyle  
Assistant City Manager

\_\_\_\_\_  
Date

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney

# **ATTACHMENT 1**

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## General Project Description

The Scope of Services (Work) for the projects includes planning, environmental and airspace analysis, preliminary engineering, design, bid, and construction phase services for the reconstruction and rehabilitation of several areas of pavement throughout San Antonio International Airport (SAT or Airport), which is owned and operated by the City of San Antonio (City) Aviation Department (SAAS). The various components will be completed as the studies are completed and available funding is allocated. It is anticipated the program will span a minimum duration of 5-years from Notice to Proceed.

The following describes the known Major Program Elements that are included in this agreement.

- Runway 13R-31L Reconstruction project
  - Reconstruction of the existing Runway 13R-31L
    - Install new centerline lighting in the final location considering Runway 13R-31L the approved and justified runway length determination
  - Pave New Runway shoulders full length on Runway 13R-31L
    - Adjust Runway edge lighting to match newly paved shoulders
    - Grade outside of new shoulders to match existing grade
- Runway 13R-31L Safety Enhancement project
  - Shift/lengthen/decouple Runway 13R-31L from Runway 4-22
  - Possible midfield taxiway / alternate landing surface (to facilitate construction of the shift/lengthen/decouple work)
- Shift/lengthen Runway 13R-31L to its maximum justifiable length configuration (Northwest) as the first phase of development for the Runway 13R-31L Safety Enhancement Project
  - Determine justified length requirement for Runway 13R-31L
    - Identify Connecting Taxiway locations based on the justified and approved condition
  - Determine length of Existing Runway to be reconstructed with the shift/extension
  - Construct shift/extension of Runway 13R-31L, Taxiway G, Taxiway H, and associated Connecting Taxiways
    - Install new runway edge lights and new centerline lights
    - Relocate Federal Aviation Administration (FAA) Navigation Aids (NAVAIDs)
    - Groove new Runway
  - Analyze grading requirements to meet the new locations of the NAVAIDs
  - Install new adjusted light lane across Highway 281
  - Install blast fence or alternate solution for NAVAID(s)
  - Analyze airspace impacts to Joint Base San Antonio for proposed construction alternatives included possible midfield taxiway/alternate landing surface
- Reconstruct / potentially relocate Taxiway N from the north edge of Runway 13R-31L to Taxiway D – matching existing pavements
  - Potentially relocate the centerline of Taxiway N to the east by 50 feet to gain an additional 50 feet of Runway 13R-31L length
  - Install new geometrics to match into all connecting taxiways and Runway 13L-31R
  - Install new shoulders and new lighting for the reconstructed Taxiway

In addition to the design portions of the program, there will be Program Formulation component to aid in the determination of justified runway length beyond the necessary shift to accommodate the decouple from Runway 4-22, safety, decouple and constructability alternatives including an alternate landing surface, and the purpose and need for the project. Further components of the planning and airspace analysis are shown in **Part 1**. An Environmental Assessment will be performed on the recommended runway shift/lengthen alternative and associated construction alternatives.

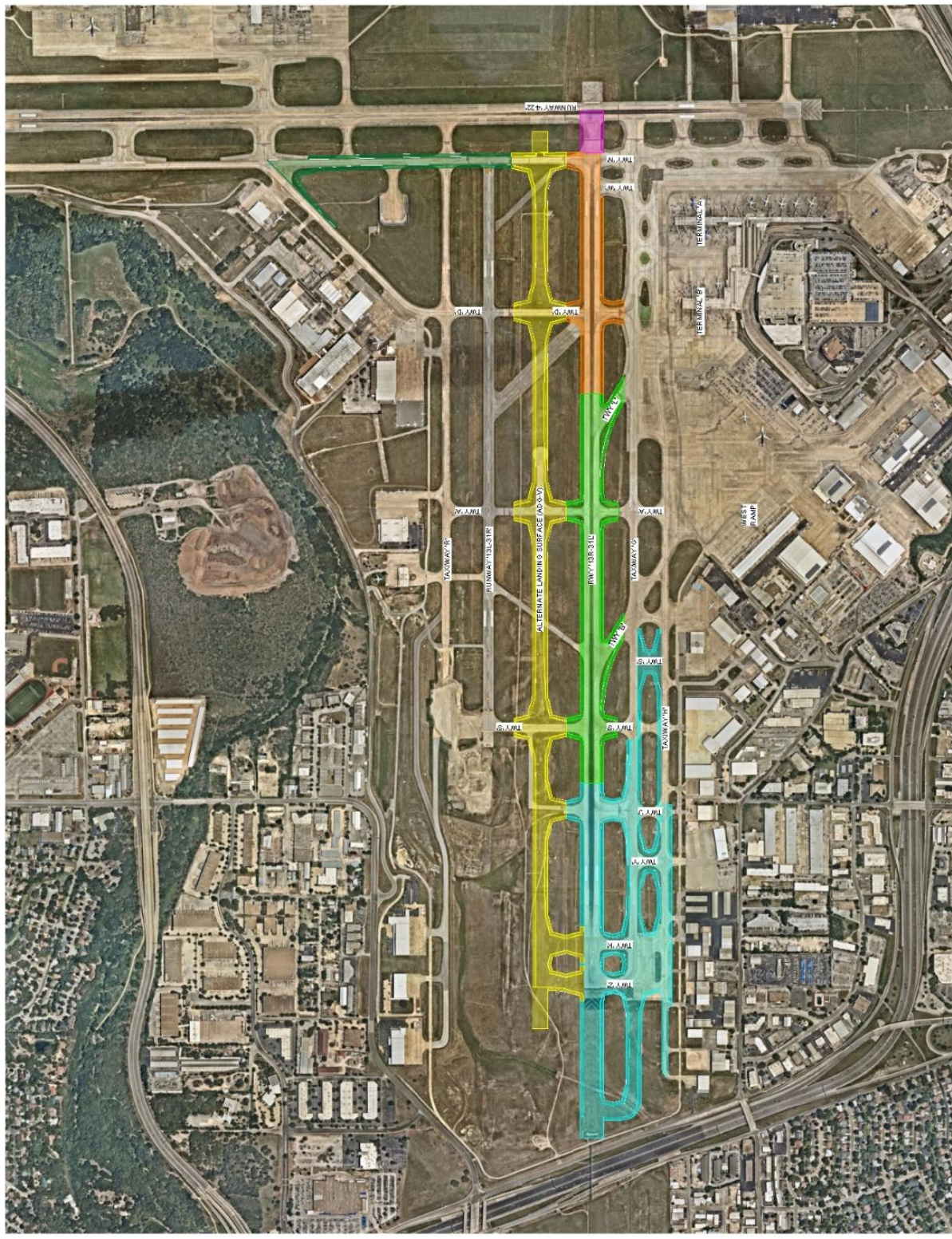
- **Figure 1** illustrates the proposed project limits of pavements identified for this project but does not identify the limits or extents of possible utility impacts. The Aircraft Design Group (ADG) for this project will be confirmed per the fleet mix evaluation being prepared in comparison to the recently completed Airport Layout Plan (ALP) set pending FAA approval, with the Taxiway Design Groups (TDG) being determined based on the latest FAA Advisory Circulars.



GRAPHIC SCALE IN FEET  
0 250 500 1000

LEGEND:

- RUNWAY 13R EXTENSION OF 1247 FT AND ASSOCIATED TAXIWAYS
- 31L DECOUPLE AND SHIFT OF 481-FT AND ASSOCIATED PROFILE ADJUSTMENT AT TAXIWAY DELTA
- RUNWAY PROFILE ADJUSTMENT
- RUNWAY RECONSTRUCTION AND ASPHALT SHOULDER INSTALLATION
- TAXIWAY NOVEMBER
- ALTERNATE LANDING SURFACE



AIRFIELD ENGINEERING DESIGN  
SERVICES ELEMENTS WITH  
ALTERNATE LANDING SURFACE  
PRELIMINARY SCHEMATIC FOR  
DISCUSSION



SAN ANTONIO  
INTERNATIONAL AIRPORT

Figure 1



## **Overall Scope of Services**

The Scope of Services (Work) for the projects includes planning, environmental and airspace analysis, preliminary engineering, design, bid, and construction phase services for the reconstruction and rehabilitation of several areas of pavement throughout the Airport. The Work is described in the following Parts.

Formatting standards for all drawings, documents, and reports will comply with the latest standards as set forth by the City and the FAA. If no drawing standards exist, Consultant shall develop one specific to the project and provide this information to the Airport for its use. The AutoCAD 2022 software for drawings and the latest version of the Microsoft Word and Excel software for word processing will be utilized in association with this project. Microsoft Project, Microsoft PowerPoint, Paver, and ESRI will be used as necessary for various tasks. All work by the Consultant shall conform to or be compatible with these conventions. Professional seals and signatures will be provided in accordance with Texas law regulating the practice of engineering and surveying. The Scope of Services has been divided into six (6) parts and specific program elements are to be constructed as the studies are completed and available funding is allocated. However, based on available funding the project could be extended.

**Part 1 Program Formulation**– This part consists of a series of analyses and studies necessary to advance the Airfield Safety Enhancement Project. The following analyses and studies are included in this Scope of Services:

- Refreshing Aviation Forecasts by analyzing near-term fleet mix scenarios
- Determine the required runway shift to decouple Runway 13R-31L and Runway 4-22
- Runway Length Justification beyond the required shift to decouple the two runways
- Airfield Alternatives Development, Evaluation, and Refinement for construction
- Airspace analysis and Procedures
- Runway Safety Area Determination

**Part 2 Environmental Planning**–National Environmental Policy Act (NEPA) evaluation of the proposed plan and alternatives resulting from Part 1 Advanced Planning.

**Part 3 Design and Engineering**– This part will consist of Engineer’s Design Reports, construction drawings, specifications, engineer’s opinion of probable construction cost(s), schedule durations, quality control reviews and revisions, constructability reviews, over the shoulder review meetings with the Airport staff, Constructability Workshop, value engineering, review and finalization of the front-end bid documents (templates provided by the Airport). The Consultant will coordinate the project package for the contractor’s permit, as well as the permit applications with COSA and SAWS (if required). Many of these items will be completed along with each bid package and alternatives developed for construction.

**Part 4 Bid Phase Services**– The Bid Phase services will be subject to the project delivery method selected for each package. This part will consist of preparing and issuing the bid packages, developing a construction industry outreach, attending and conducting the pre-bid meeting, providing clarifications to bidders, responding to written questions, preparing addenda, attending bid opening, evaluating the bids and the required documentation, and prepare a recommendation for award to the City. The intent is that while a construction package is out for bid, the future construction phase services and project closeout amendment will be finalized.

**Part 5 Construction Phase Services** – This part will consist of administrative, pre-construction, and on-site observation tasks during construction of individual projects.

**Part 6 Project Closeout** – This part will consist of post-construction administrative tasks, including development of a final construction closeout report and assistance with City closeout processes.

### **Part 1 Program Formulation**

#### *1.1 Program Development and Coordination*

Consultant shall provide program development and coordination services with SAAS staff for the Airfield Safety Enhancement Program. The services will consist of the development of program sequencing, program-level opinions of probable construction costs, goal and objectives definition, risk assessment, and implementation. The services will support the development of the SAAS’ capital improvement plan and the FAA-coordinated Airport Capital Improvement Plan (ACIP).

**Deliverables:**

- Technical Memoranda and Documentation for CIP and ACIP development

**Work Planning**

Consultant shall develop a program work plan with individual projects for project team use in the execution of the project. The project work plan will include but not be limited to the following: contract Scope of Services, terms and conditions; schedule; Quality Control Plan; organizational chart; identify each team member, their role and contact information, lines of communication, and program and project schedules. The schedule(s) identifies the internal and external deadlines, and the schedule of quality control input and reviews. The schedule will be updated semi-monthly (twice a month) and distributed to the team. The Consultant will provide support efforts to the Airport for the development of updates to the City Capital Improvement Plan (CIP) and FAA Airport Capital Improvement Plan (ACIP). Meetings are estimated to be up to four (4) annually.

**Deliverables:**

The Consultant will submit one (1) bound copy and 1 electronic copy of the work plan to the Airport in draft form within two weeks of the NTP, and electronic copy of the final work plan incorporating the Airport’s comments within one week of receipt of the comments. The work plan will be updated as needed and will be stored on the project website or other project shared access platform as determined by the Airport.

*1.2 Program Coordination*

The Consultant program manager and support staff will coordinate with the Airport project management and public relations staff with regular meetings to inform internal and external stakeholders. Meeting frequency will be defined based on Major Project Elements and package definition. Coordination efforts will consist of meeting agenda and PowerPoint presentation development. Presentations may consist of Program Updates, Program Element Updates, Construction Package Updates (progression of planning, design, and/or construction), major milestones, Program Schedule, and Industry Engagement. Program Coordination efforts will be performed by Program Manager, Program Controls, and Program Scheduler. Program coordination may consist of support services provided by technical, administrative, and support personnel.

**Deliverables:**

Meeting facilitation and project presentation materials, update project documentation library, exhibits, and compilation of identified action items and subsequent tracking.

*1.3 Program Schedule*

Based on consultation with the Airport for internal and external deadlines and known scheduling requirements, Consultant shall develop a critical path schedule for the overall program and the program elements. An initial project schedule will be presented to the Airport at the project kickoff meeting and included in the meeting notes. This schedule will then be updated for each meeting and included on the project website for all stakeholders to utilize when needed.

Schedule critical dates will be based on information identified in each work phase under these Scope of Services. The Consultant shall coordinate with the Airport, internal stakeholders, and external stakeholders to establish and adjust project milestones for each task throughout the duration of Parts 1 and 2 of the Scope of Services.

**Deliverables:**

On a case-by-case basis, Consultant will provide schedules in a different format at the Airport’s request depending upon legibility and audience.

*1.4 FAA Coordination Meetings*

The Consultant will coordinate and host meetings with the FAA Airports District Office (ADO) staff to obtain high-level and design-level input on the Advanced Planning and Environmental Planning portions of this program for the first 1.5 years of this project. This task will be utilized to engage the FAA ADO on a regular basis to discuss program, document decisions and concurrence, and strategize the overall progression of the program. The Consultant will assist SAAS in the preparation of the ACIP and attend ACIP and program meetings on site at the ADO/Regional office quarterly for 1.5 years.

**Deliverables:**

Meeting agendas, meeting notes, project presentation materials, update project documentation library, exhibits,

and compilation of identified action items and subsequent tracking

#### *1.5 Monthly Coordination Meetings*

Once a month for the first 1.5 years, meetings will be held with the Airport and Consultant's Key Staff for general program coordination. These meetings shall include the stakeholders associated with this project including City and Airport team members, FAA tower and ADO staff, and the Consultant project team members to resolve questions and obtain answers to clarify planning considerations and operational impacts of the project. The overall program and individual program element schedules will be reviewed at each meeting including the program element current status and/or package completion and review of major milestone dates. Meeting agendas will also include identified planning items considered critical to the implementation of the program and program elements. Analyses, reports, alternatives, investigations, workshops, and meetings conducted under separate sub-parts will be summarized for the monthly meetings to provide the Airport with various options, alternatives, and improvements, and lessons learned which will be considered in preparation of planning documents.

#### ***Deliverables:***

Agendas, project milestone schedules, action items, exhibits.

#### *1.6 Airline Manager Meetings*

The consultant will prepare and provide documentation such as presentation materials and talking points for monthly Airline Manager meetings, for the first 1.5 years, to keep them informed of the phases, the planned changes in phases, and potential impacts to air traffic and/or airport operations. These meetings will be prepared for and attended by the Airport. The Consultant will include plans and/or exhibits to denote the changes to operations and how this will affect the airlines.

#### ***Deliverables:***

Presentation documents will be provided to the airport in electronic format.

#### *1.7 Executive Meetings*

Executive-level meetings will be held once per month for the first 1.5 years of this project and will be attended by the Program Manager, Project Manager, and Deputy Project Manager. These meetings will be attended by senior members of the Airport staff or others as directed, to provide status updates (scope, schedule, budgets), alternatives and recommendations, and solicit executive input. Key Consultant staff including a Senior Aviation Principal will be on hand every other meeting to discuss the project as well as additional items as requested by the executives.

#### ***Deliverables:***

Meeting agendas and handouts, meeting notes, project presentation materials, update project documentation library, exhibits, and compilation of identified action items and subsequent tracking, and uploaded to the project shared site.

#### ***Deliverables:***

Meeting handouts, project presentation materials, update project documentation library, exhibits, and compilation of identified action items and subsequent tracking for the public workshop forums.

#### *1.8 Program Management Key Staff*

For the first 1.5 years, all services and/or phases of assigned individual programs and projects will require interaction and coordination with the Airport Staff, airport contractors as directed, airport tenants, airlines, and other stakeholders, external agencies, the Federal Aviation Administration (FAA), and the Transportation Security Administration (TSA). The Consultant will be responsible for compliance with applicable and current at time of notice-to-proceed TSA and FAA Advisory Circulars, Orders, and other airport and regulatory guidance documents as well as all federal, state, and local laws.

#### **Program Manager**

For the first 1.5 years, the Program Manager role will lead the program management services to support, coordinate, and provide multiple levels of program management expertise for the AEDS program at SAT. the Program Manager will coordinate with SAT's Executive Leadership Team, Department of Aviation Staff, City Staff, Project Manager, Deputy Project Manager, and concurrent SAT programs. The Program Manager will coordinate with the new Construction Development Officer (CDO) and interface with concurrent SAT programs that may have technical interface with the AEDS program.

### **Program Controls**

For the first 1.5 years, the Program Controls professional will be responsible for maintaining program document and controls organization. Program Control personnel will be responsible for maintaining the Project Website and Project Data Archives. This role is responsible for implementing the mutually agreed business process, automated workflows, and will coordinate with the Program Manager and Program Scheduler. The role will establish document control metadata and taxonomy requirements, establish workflows related to contracting, change orders, payment documentation, estimating, performance measurement, develop report templates and production for the monitoring of program performance, create and maintain monthly reporting to reflect budget, encumbrances, invoices, DBE participation, cost-to-complete estimates, budget variances, and schedule progression. The role will be responsible for the monitoring and control of security rights for the program data storage.

### **Program Scheduler**

For the first 1.5 years, the Program Scheduler will serve the program in providing program planning, scheduling, monitoring, performance measurement and reporting, and schedule quality review. Program Scheduler will provide subject matter expertise on identifying critical path efforts. Program Scheduler will be responsible for developing Gantt Schedule documentation using Microsoft Project. The Program Scheduler will lead the development of a program schedule baseline in coordination with SAAS, Project Manager, and Program Manager. Program Scheduler will develop timing, durations, and critical path elements from planning through construction and project closeout for the overall program, element, and package schedules. Program Scheduler will review and analyze design and construction milestones; identify impacts to change in schedule, implement schedule best practices, implement program schedule reporting, and interface with Project schedulers.

### ***Deliverables:***

An SAAS-approved Program Manager, Program Controls, and Program Scheduler will be provided for the specified duration.

#### ***1.9 Runway Safety Area Determination (RSAD) Study for 13R-31L***

The Consultant will conduct a Runway Safety Area Determination for the approach ends of Runway 13R-31L that is consistent with guidelines set forth in FAA Standard Operating Procedures (SOP) 8.00, Runway Safety Area Determination.

This includes the following action items:

- Conduct an RSA Inventory (RSAI) of the existing approach end of Runway 13R-31L
  - Confirm that existing RSA conforms to design standards outlined in FAA ACs 150/5300-13B
- Analyze whether a standard RSA or a non-standard RSA can be achieved at the approach end of Runway 13R-31L with the shifted/extended Runway 13R-31L (Note: output from this analysis will also inform maximum runway length in **Task 1.16**).
  - If the RSA cannot meet FAA design standards, an RSA Evaluation will be conducted, which includes:
    - Determination if it is practicable to improve the RSA to meet standards, and an alternatives analysis that identifies the means by which improvements can be implemented.
    - If it is not practicable to improve the RSA to meet standards, an additional analysis will be conducted to identify if the RSA can be incrementally improved to enhance safety, and by what means.
- Define Declared Distances for the shifted/extended Runway 13R-31L inclusive of analyzing the landing threshold and departure point for operations in both directions

Consultant will compile a technical memorandum in accordance with FAA SOP 8.0 to submit to the FAA for review and formal determination.

The Consultant will prepare economic justification for certain RSA solutions, following FAA's SOP No. 9. The

documentation of the economic justification will be packaged into the overall RSAD study. This task includes one (1) in person Client coordination meeting and one (1) in person meeting with the FAA. Three (3) members of the Consultant team will attend each meeting.

#### *1.10 Airfield Geometry Review and RIM Considerations*

The Consultant will review the airfield geometry, considering RIM issues, to include the following:

- Review and summarize previous alternatives analysis
- Review recommendations made in the SDP
- Gather recent (from January 1, 2019 through Notice to Proceed) runway incursion data from the FAA Runway Safety Office – Runway Incursion System (RWS)
- Observe airport operations when the primary runways and crosswind runway are in use
- Meet with Subject Matter Experts (SMEs) to better understand airport operations as they pertain to problematic airfield geometry and possible mitigations
  - FAA Air Traffic Control (ATC)
  - Airport Operations
  - Airlines
  - GA tenants
- Conduct an independent assessment of the existing airfield, identifying any problematic airfield geometry

The airfield geometry concepts will be presented to the City at one of the coordination meetings for incorporation into the overall plan. . The Consultant will conduct up to three (3) technical meetings for this task, one of them in person and two virtual. Each will include three (3) Consultant Team Members.

#### *1.11 Validation of Existing Airport and Data Information Portal (ADIP) Survey Data*

The Consultant understands that a survey, compliant with AC 150/5300-18B - General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards, was collected in 2019 as part of the SDP. The SDP survey will be utilized for the Part I Advanced Planning work. For the purposes of a “Design/As-Built” project in ADIP, the imagery in this 18B survey is still considered usable through 2022 for the Design portion of the project (i.e., three years from collection). However, it is possible to extend the three-year timeframe through the MOS process, whereby the request is submitted for FAA HQ final approval.

The Consultant will validate the appropriateness of the existing ADIP survey data for use in Design. If deemed appropriate, the Consultant will assist the City with the MOS process within the FAA’s ADIP system. Note: A full set of imagery will still be required to be collected during the As-Built phase.

#### *1.12 FAA Small Scale Reimbursable Agreements (SSRA)*

This program will initially require at least two (2) Small-Scale Reimbursable Agreements (SSRAs). The Consultant will prepare a draft letter for SAT to submit to the FAA requesting development of and justification for the SSRAs. Consultant shall assist with coordination of FAA NAS Planning to facilitate a quick development and approval of the SSRAs.

#### ***Deliverables:***

The Consultant will submit the draft SSRA request letter and create meeting notes as appropriate.

#### *1.13 Exit Taxiway Analysis – Initial Schematic*

This task will address the relocation of high-speed exit taxiways. The Consultant will conduct Runway Exit Design Interactive Model (REDIM) analysis to validate potential high-speed exit locations, functionality, and runway occupancy times for current and forecasted fleet mixes at SAT.

The Consultant will evaluate up to three (3) locations for relocated high-speed exit taxiways. The Consultant will prepare initial schematic illustrations with exit taxiway locations and their corresponding REDIM metrics.

#### *1.14 Development of Baseline TAAM Simulation Model*

The Consultant will perform a detailed simulation modeling analysis of SAT using TAAM (Total Airspace and Airport Modeler) a simulation tool that includes surface movements, terminal airspace procedures, and military



and GA operations in the San Antonio region. The purpose of this analysis is to determine the potential impacts, such as aircraft flow capacity and potential surface delays of the SAT system to current air traffic at the airport and in the surrounding airspace, as the airfield alternatives and planned construction phases are implemented over time. The results of the TAAM modeling are also use as inputs to the air quality and noise and land use compatibility analyses being conducted in the EA.

The Consultant will develop a baseline infrastructure and operations model in TAAM to including the following parameters:

- Preferred runway configurations 13R-31L, 4-22, 13L-31R (considering meteorological VMC/IMC conditions)
- Gate and apron assignments by airlines, parking areas, GA
- Preferred taxi routes to/from gates/hangars
- Runway departure queuing, standoffs
- Runway arrivals turn outs (by aircraft type)
- Standard Instrument Departure and Arrival Routes as published by FAA
- Matching runway configurations and traffic for Randolph AFB, plus procedures
- Procedures into Kelly Field and Randolph AFB

For the successful completion of this task, the Consultant will need assistance from the City in acquiring the following data for the purposes of and the TAAM modeling:

- a. Current airfield layout of SAT with all runways, taxiways, gates, terminal buildings, parking areas, hangars in AutoCAD
- b. Assignment of gates by airlines with turnaround time data by typical aircraft
- c. San Antonio Class C Airspace and Terminal Area Airspace, Kelly and Randolph Class D Airspace, Houston Air Route Traffic Control Center (ZHU ARTCC) Airspace.
- d. FAA Commercial Air Traffic Schedules (SWIM, TFMS data)
- e. VFR and Military Air Traffic per ADS-B availability, (Note: possible sensitivity restrictions)

The TAAM modeling effort will require four (4) meetings with Tower and Terminal area FAA staff for model data collection, traffic observations and validation of the baseline and alternative simulation models. Additionally, one (1) meeting is required with Houston (ZHU) to validate the ingress/egress of traffic flows and restrictions between terminal and en route airspace. Each will include two (2) Consultant Team Members.

#### *1.15 TAAM Simulation Modeling (Runway Shift/Extension)*

The Consultant will assess surface and airspace capacity, delays, taxi times along with impacts to Randolph AFB traffic for up to two (2) operational scenarios in TAAM.

The Consultant will submit the simulation models with airport operational results that include capacity, taxi times, distance travelled, airspace proximities and delays as compared to baseline metrics for the operational scenarios. This will include a briefing for stakeholders and a technical report.

#### *1.16 Feasibility Study for New Instrument Flight Procedures*

The Consultant will examine the feasibility of new instrument flight procedures (in AutoCAD and TARGETS), to include:

- New instrument flight procedures to an alternate landing surface (up to 3 variations)
- New instrument flight procedures to a new full-length commercial runway (up to 3 variations)

As part of this effort, the Consultant will work with the internal project team to analyze notional threshold locations and develop feasible instrument approach and departure procedures, which will also serve as input in the TAAM simulation model.

#### *1.17 New Instrument Flight Procedure Technical Interchange Meetings*

The Consultant will participate in up to four (4) Technical Interchange Meetings with technical SMEs to discuss instrument flight procedures (one (1) in-person and the remaining virtual). Each will include two (2) Consultant Team Members. SMEs are expected to include SAT, RND, Air Education and Training Command (AETC) HQ, FAA, Airlines, ATCT staff, and the Fixed-Base Operator (FBO). This is to validate assumptions on new

procedures for use in the TAAM modeling effort.

***Deliverables:***

The Consultant will prepare meeting notes for the Technical Interchange Meetings.

*1.18 Exit Taxiway Analysis – Advanced Schematic*

The Consultant will prepare REDIM models using the existing and forecasted fleet mixes to assist with the location of runway exits for a possible alternate landing surface and new full-length commercial runway, as well as provide inputs for the fast-time simulation model.

Using REDIM, the Consultant will define a minimal number of exits that balance runway exit usability and overall runway occupancy time, considering operations from both directions and overall airfield circulation. The Consultant will develop up to three (3) concepts with defined number and type of exits (i.e., 90-degree, high-speed, etc.) with corresponding illustrations for the alternate landing surface and also for the full-length commercial runway.

The above-mentioned REDIM analysis will be presented to the City and other key stakeholders, such as the FAA, airlines and GA tenants, for their review and input. The Consultant will conduct up to three (3) virtual stakeholder meetings for this task. Each will include two (2) Consultant Team Members.

Based upon feedback received, a preferred concept will be developed to form the basis of concept design.

*1.19 TAAM Simulation Modeling (Alternate Landing Surface)*

The Consultant will assess constructability, capacity, delays, taxi times along with impacts to Randolph AFB traffic for up to three (3) operational scenarios in TAAM.

Scenarios may include:

1. Development of an Alternate Landing Surface

The Consultant will submit the fast-time simulation models with airport operational results that include capacity, taxi times, distance travelled, airspace proximities and delays as compared to baseline metrics for the operational scenarios. This will include a briefing for stakeholders and a technical report.

*1.20 Constructability Evaluation*

A constructability evaluation will be performed on the 15% Schematic Development-level elements. The evaluation will analyze construction durations, preliminary phasing, opinion of probable construction cost, planning-level indirect costs, and consideration of other airfield improvements and terminal projects.

1.23.1 Technical Interchange Meetings for Temporary Instrument Flight Procedures - The Consultant will participate in up to eight (8) Technical Interchange Meetings with technical SMEs to discuss temporary instrument flight procedures. Each will include two (2) Consultant Team Members. SMEs are expected to include SAT, FAA, Airlines, Air Traffic Control Tower (ATCT) staff, and the Fixed-Base Operator (FBO). The Client will also facilitate discussions regarding temporary NAVAIDs (i.e., PAPIs) and minimum operating runway lengths during construction and phasing. The Consultant will conduct an analysis of Declared Distances.

1.23.2 TAAM Modeling for Phasing/Construction – RW 13R Keel - The Consultant will assess surface and airspace capacity, delays, taxi times along with potential impacts to TRACON airspace for up to two (2) phasing/construction scenarios in TAAM. The Consultant will prepare a high-level briefing of TAAM results.

1.23.3 TAAM Simulation for Taxi Routes for Phasing/Construction TW N - The Consultant will assess the airfield and airspace impacts to taxi routes during the construction for one (1) construction scenario in TAAM. The Consultant will prepare a high-level briefing of TAAM results.

Existing drainage systems, including inlets and outfalls, will be evaluated to determine the system's capabilities to convey stormwater based on changes made to the runway and taxiway system as a result of each alternative analyzed, for pavement rehabilitation and new construction.

The Work will include modifications to existing drainage systems due to additional pavements, if required. An evaluation of the drainage network associated with the areas surrounding these reconstruction activities will be performed to mitigate issues that might arise due to the change in condition. The Consultant shall also identify all of the drainage systems/structures to determine if any will need to be modified along with each alternative.

Any modifications or adjustments to utilities will be incorporated into the plans and presented to the stakeholders.

### **Review**

The Prime Consultant will review any submittal, provide written questions and comments within one (1) week of submittal. Any area identified to be a possible issue or concern will be brought to the attention of the airport immediately. Once the comments have been addressed and are acceptable to the Consultant, this report will be provided to the airport for review. Deliverables will be uploaded to the project document library.

#### *1.21 Benefit-Cost Analysis*

A benefit-cost analysis will be performed on scenarios associated with the 15% program elements in accordance with the FAA Benefit-Cost Analysis (BCA) Guidance document. The BCA scenarios will be informed by the progression of the 15% Schematic Development-level program element development and the results of the Constructability Evaluation. This task will include coordination with major stakeholders, such as USAF JBSA, to estimate indirect costs associated with the program elements and construction.

#### *1.22 Program Stormwater Formulation*

A program-level stormwater evaluation will be performed on the 15% Schematic Development-level elements. Existing drainage systems, including inlets and outfalls, will be evaluated to determine the system's capabilities to convey stormwater based on changes made to the runway and taxiway system as a result of each alternative analyzed, for pavement rehabilitation and new construction.

The Work will include modifications to existing drainage systems due to additional pavements, if required. An evaluation of the drainage network associated with the areas surrounding these reconstruction activities will be performed to mitigate issues that might arise due to the change in condition. The Consultant shall also identify all of the drainage systems/structures to determine if any will need to be modified along with each alternative.

Any modifications or adjustments to utilities will be incorporated into the plans and presented to the stakeholders.

#### *1.23 Aerial Obstruction Survey Per AC 150/5300-18B for Flight Procedure Analysis*

The Consultant, with a qualified subconsultant, will support the performance of a new AC 150/5300-18B survey. Data acquisitions will consist of an aerial obstruction survey and review of any prior dataset provided by the Airport. The resultant data will be utilized to inform flight procedure analysis efforts.

### **Part 1 Program Formulation (Optional Services)**

#### *1.24 FAA Coordination – Reimbursable Agreements (RAs) for the Runway 13R/31L Shift/Lengthen/Decouple project*

This program will require a number of Reimbursable Agreements over the course of the program. Due to time constraints, the Consultant will assist the Airport with initiating RAs near the end of the Advanced Planning efforts and in advance of the future design efforts. Consultant will prepare draft letters for SAT to submit to the FAA requesting initiation of one or more RAs. Consultant will schedule regular bi-weekly meetings in order to keep this process moving forward to obtain the approval as soon as possible. Consultant will work closely with multiple FAA business lines such as NAS Planning, Engineering Services, and Flight Procedure and Flight Inspection to ensure they have all required data to meet publication dates and commissioning flight inspections throughout the duration of the project.

#### **Deliverables:**

Draft RA request letters and meeting notes for each meeting, and an action item / tracking status sheet.

### **Part 2 Environmental**

#### *2.1 Program Workplan*

Consultant shall provide management and administrative tasks throughout the project including project planning, budgeting, schedules and updates, attend and chair review meetings and technical stakeholder engagement workshops, and prepare notes for all meetings and workshops.

#### **Project Initiation and Quality Workshop**

Consultant will lead the on-site project initiation (or kickoff) meeting to include Airport, Tower (ATCT) & Consultant's key staff. Consultant will also prepare for and host a separate on-site Quality Workshop to identify quality expectations throughout the project.

#### **Deliverables:**

- An initial agenda will be distributed for review prior to the workshop

- Workshop summary notes and other results will be developed and forwarded to attendees for review and comment

### **Work Planning**

Consultant shall develop a program work plan that the project team will use in the execution of the project. The project team shall be comprised of both Consultant and Airport staff. The project work plan shall include at a minimum: the Work, terms and conditions, program and project schedules, a quality control plan, and an organizational chart, which chart shall identify each team member, their role and contact information, and lines of communication. The schedule(s) shall identify the internal and external deadlines and the schedule of quality control input and reviews.

#### ***Deliverables:***

Consultant shall submit an electronic copy of the work plan to the Airport in draft form within two weeks of the Notice to Proceed (NTP). Consultant shall submit one electronic copy of the final work plan incorporating the Airport's comments within one week of receipt of the comments. Consultant shall update the work plan as needed and shall store the work plan on the project website or other shared access platform as determined by the Airport. Agendas, notes, project presentation materials, update project documentation library, exhibits, and compilation of identified action items and subsequent tracking will also be provided.

### **Program Schedule**

Based on consultation with the Airport for internal and external deadlines and known scheduling requirements, Consultant shall develop a critical path schedule for the overall program and the program elements. An initial project schedule shall be presented to the Airport at the project kickoff meeting and included in the meeting notes for the kickoff. This schedule will be routinely updated included on the project website. Schedule critical path dates shall be based on information identified in each Work phase. Consultant shall coordinate with Airport, internal stakeholders, and external stakeholders to establish and adjust project milestones for each task throughout the duration of the Work. Consultant shall monitor the schedule, conduct performance measurement and reporting, and schedule quality review.

#### ***Deliverables:***

Consultant shall submit to Airport electronic & hard copies of the project and program schedules developed using Microsoft Project. All tasks identified in this scope shall be included in the schedule. The schedule shall be updated bi-weekly and with each meeting, delivered to the project team in hard copy, and posted in PDF form on the project shared site. Consultant shall provide schedules in a different format at the Airport's request on an as needed basis.

### **Project Meetings**

Consultant shall prepare for and conduct monthly project meetings with the Airport and Consultant's key staff for general program coordination to facilitate to resolve questions and obtain answers to clarify planning considerations and operational impacts of the project. The overall program and individual program element schedules shall be reviewed including status and review of major milestone dates.

#### ***Deliverables:***

Agendas and handouts, notes, project presentation materials, update project documentation library, exhibits, and compilation of identified action items and subsequent tracking, and uploaded to the project website.

### ***2.2 Program Stakeholder Engagement***

Consultant shall coordinate and host various stakeholder engagement activities throughout the duration of the environmental study to obtain input, concurrence, and decisions, or to provide project status information.

Stakeholder engagement includes but is not limited to the following:

- Technical workshops – individual or in groups: Stakeholders include various FAA business lines such as FAA Airport District Office (ADO), local Air Traffic Control (ATC) staff, airlines, and other key technical stakeholders as appropriate to the technical work
- Program Briefings individual or in groups: Stakeholders include Airport and City executive staff and Airport public relations staff, to facilitate informing internal and external stakeholders
- Local agency coordination – individual or in groups: Stakeholders include TxDOT, San Antonio Water System (SAWS) and City Public Service (CPS) (electrical)

***Deliverables:***

Agendas, notes, project presentation materials, update project documentation library, exhibits, and compilation of identified action items and subsequent tracking

Consultant shall prepare and provide documentation such as presentation materials and talking points for additional program stakeholder engagement activities throughout the duration of the environmental study to keep Aviation stakeholders, neighbors, and the community informed of current and proposed projects associated with the Work. Stakeholder meetings supported include but is not limited to the following: monthly airline manager meetings, public workshop forums for neighborhood alliances or community organizations, and for Aviation’s small business outreach efforts (Industry Day). Industry Day small business outreach will be City funded during the Environmental Study.

***Deliverables:***

- Handouts, notes, project presentation materials, update project documentation library, exhibits, compilation of identified action items & subsequent tracking, and uploaded to project shared site.

***2.3 Program Outreach (City Funded)***

The Consultant will assist SAT by developing meeting materials to share information on Program Elements and anticipated future construction packages. The intended use of these materials is for public workshop forums (virtual and in-person) for neighborhood alliances or community organizations, and for SAAS’ small business outreach efforts (Industry Day).

***2.4 Data Gathering***

**Record Documentation Review**

The Consultant shall gather, review and catalog data and previous airport studies for SAT, including but not limited to:

- 2021 San Antonio International Airport Strategic Development Plan (SDP)
- SAT SDP Airport Layout Plan (ALP)
- 14 CFR Part 150 Noise Exposure Study and Map Update
- Capital Improvement Plan (CIP)
- Runway Incursion Mitigation (RIM) Program/Safety Enhancement Program presentations
- Review and investigate FAA and Airport systems utility maps
- Review and investigate FAA ELD and comm maps to determine location of existing power and communication cabling and duct banks, as well as NAVAIDS

A survey, compliant with Advisory Circular (AC) 150/5300-18B - General Guidance and Specifications for Submission of Aeronautical Surveys to NGS: Field Data Collection and Geographic Information System (GIS) Standards, was collected in 2019 as part of the SDP. The Master Plan survey will be utilized for the initial evaluation of the field obstructions. For the purposes of a “Design/As-Built” project in ADIP, the imagery in this 18B survey is still considered usable through 2022 for the environmental study portion of the Work (i.e., three years from collection).

**Airport Site Visits**

In support of the purpose and need development, Consultant shall perform Airport site visits to gather information about specific systems relative to the NAVAIDS. Anticipated site visits are listed below:

- FAA NAVAIDS. This work will be limited to what can be verified by surface feature observation of all affected facilities including ALSF, MALS, GS, LOC, RVR, FFM, DME, PAPI. This observation shall include entry recording and photography of manhole and hand-hole structures if applicable.

Depending on the possible recommendations, the NAVAIDS may need to be altered or adjusted as part of the program. These visits will aid in the determination of viability of the alternatives.

Consultant shall interview FAA SSC personnel to determine systems and component preferences, operations standards, verification of or corrections to existing system elements shown on record drawings.

***2.5 Runway Length Justification***

Consultant will determine the maximum runway length that Runway 13R-31L can be extended beyond the limits

of the decouple shift from Runway 4/22 based on geometric and operational considerations. Consultant shall include, but not be limited to, the following considerations in determining runway length:

- Geographic extents of airport boundaries and adjacent roadways
- Obstacle environment/Airspace/Precision approaches/Navigational Aids
- Climate change/Temperature/Altitude
- Runway Safety Areas (RSAs)/Runway Object Free Areas (ROFAs)/Runway Obstacle Free Zones (ROFZs)
- Operational Demand
  - Destinations
  - Aircraft fleet mix
  - Carriers
- Standards set forth in AC 150/5325-B, *Runway Length Requirements for Airport Design*
- Previous studies

The Consultant shall create and analyze two (2) concepts in AutoCAD to achieve a maximum runway length for Runway 13R-31L.

Additionally, the Consultant shall validate the runway length requirements determined in the SDP. The Consultant shall use FAA-developed spreadsheet calculators to determine site specific landing and takeoff runway length requirements considering:

- Airport elevation
- Mean maximum daily temperature
- Runway gradient
- Wet conditions (landing only)

The Consultant shall provide the initial analysis and findings to the City and key stakeholders and shall coordinate and conduct a working session to discuss the results and identify potential refinements based on stakeholder input. As a part of this working session, the Consultant shall solicit input, such as policies, rules or operational requirements that may impact analysis of landing and departure lengths by aircraft type and discuss adjustments to calculated lengths based on input received.

The Consultant shall engage in discussions with airlines using the most demanding aircraft at SAT. These airlines shall include both cargo and passenger airlines for domestic and international operations. This task includes effort to reach out to the airlines, with help from the City, to make the appropriate introductions.

The FAA’s Office of Airports and MITRE’s Center for Advanced Aviation System Development (CAASD) are currently developing a software application to facilitate faster decision making for runway lengths and will publish it for use by airport planners. Consultant shall coordinate with the FAA to incorporate its use in the runway length justification analyses to be performed hereunder by Consultant. This Work will only be conducted should the new software be published for consultant use prior to runway length approval for use in the purpose and need.

*2.6 Evaluation of Construction Impacts to Joint Base San Antonio*

A key consideration in the execution of the program is the retention of precision approaches on Runway 13R-31L and minimizing impacts to Joint Base San Antonio airspace operations. In order to analyze the approaches, the Consultant shall develop a baseline model of the existing instrument flight procedures and the associated obstacle clearance and obstacle identification surfaces for SAT and Randolph Air Force Base (RND). Consultant shall use both AutoCAD and the FAA Terminal Area Route Generation Evaluation and Traffic Simulation (TARGETS) to model published procedures, including:

- Published instrument approach procedures to SAT, with an emphasis on the following:

<b>Conventional</b>	<b>Area Navigation (RNAV)</b>	<b>Required Navigation Performance (RNP)</b>
---------------------	-------------------------------	--

ILS RWY 13R (CATII)	RNAV (GPS) Y RWY 22	RNAV (RNP) Z RWY 31L
ILS OR LOC RWY 13R	RNAV (GPS) Y RWY 31L	RNAV (RNP) Z RWY 13R
ILS OR LOC RWY 31L	RNAV (GPS) Y RWY13R	RNAV (RNP) Z RWY 22

- Currently published instrument approach procedures to RND, with an emphasis on the following:

Conventional	Area Navigation (RNAV)
HI-ILS OR LOC Z RWY 15L	RNAV (GPS) Y RWY 15R
ILS OR LOC Y RWY 15L	RNAV (GPS) Y RWY 15L
ILS OR LOC RWY 15R	
TACAN RWY 15R	
HI-TACAN A	

- Pending instrument flight procedures, including any Performance Based Navigation procedures currently under development
- Current published Departure Procedures and One Engine Inoperative (OEI) Surfaces
- Existing NAVAIDs

Based on optimizing the use of Runway 13R-31L, minimizing construction impacts to the National Airspace System, evaluating air quality during construction, the Consultant shall analyze the impacts of a relocated Runway 13R threshold on instrument flight procedures for two (2) threshold locations.

The Consultant shall determine whether applicable instrument flight procedure, approaches and departures, can be modified and retained with a relocated Runway 13R threshold (during construction).

As part of this task, the Consultant shall perform an airspace obstruction analysis for the modified instrument flight procedures using the best available obstacle data, to include existing FAA Obstacle Authoritative Source (OAS) data.

With the models developed, the Consultant shall participate in up to four Technical Interchange Meetings with technical subject matter experts (SMEs) to discuss instrument flight procedures. SMEs are expected to include SAT, RND, Air Education and Training Command (AETC) HQ, FAA, airlines, Air Traffic Control Tower (ATCT) staff, and the Fixed-Base Operators (FBO).

#### **Evaluation of Impacts to Joint Base San Antonio – Modified Procedures**

The Consultant will analyze the impacts of a relocated Runway 13R threshold on instrument flight procedures for up to three (3) threshold locations.

The Consultant will determine whether applicable instrument flight procedure, approaches and departures, can be modified and retained with a relocated Runway 13R threshold.

As part of this task, the Consultant will perform an airspace obstruction analysis for the modified instrument flight procedures using the best available obstacle data, to include existing FAA Obstacle Authoritative Source (OAS) data.

#### **Evaluation of Impacts to Joint Base San Antonio – Interchange Meetings**

The Consultant will participate in up to four (4) Technical Interchange Meetings with technical SMEs to discuss instrument flight procedures (one (1) in-person and the remaining virtual). Each will include two (2) Consultant Team Members. SMEs are expected to include SAT, RND, Air Education and Training Command (AETC) HQ, FAA, Airlines, ATCT staff, and the Fixed-Base Operator (FBO).

#### ***Deliverables:***

The Consultant shall prepare meeting notes for the Technical Interchange Meetings.

#### ***2.7 Runway Incursion Prevention Situational Awareness (RIPSA) Coordination***

Consultant understands that implementation of the projects covered under the RIPSA initiative of the Runway Incursion Reduction Program (RIRP) will need to be closely coordinated with this FAA Safety Research and Development (R&D) Project. The Consultant shall participate in up to five RIPSA-related meetings. Each will

include two Consultant team members.

#### *2.8 Proposed Action Development link to the NEPA Process for the Runway Shift/Extension/Decouple*

##### **Project Description – Proposed Action**

The Consultant shall use the tasks above and shall provide input into the NEPA documentation. The Consultant shall work with the project team to develop a detailed study area and description of the proposed action for use and development in the NEPA document. The proposed action referred to herein is the shifting/lengthening/decouple of Runway 13R-31L.

##### **Purpose and Need**

Building on the work described in the tasks above, Consultant shall work with the project team to develop a detailed need and purpose for the proposed action. The need and purpose statements will be coordinated with the FAA for comment and approval in advance of the analysis.

##### **Alternatives Analysis**

Building on the work performed in the tasks above, the Consultant shall work with the project team to document the alternative analysis, including the no-action and proposed action alternatives, the means and methods under which these alternatives were evaluated. If an alternative analysis is to be developed further through NEPA analysis in the Environmental Assessment (EA).

#### *2.9 Aviation Demand Analysis*

Consultant shall analyze certain demand components to use in advanced facility planning at SAT, in support of implementing the vision established in the SAT Master Plan. Consultant shall include refined investigations into the emerging aircraft fleet and the development of a gated flight schedule model. Consultant shall use this information as primary inputs to the runway length analysis.

##### **Aircraft Fleet Analysis**

Consultant shall research the emerging aircraft fleet to determine which aircraft or group of aircraft is the most demanding relative to airfield requirements. Consultant shall utilize this information (considered supplemental to the FAA-Approved SAT Master Plan Forecast) in developing the runway length analysis, the runway and taxiway design parameters, and the noise and air quality modeling. Consultant shall initially focus on seating ranges of aircraft likely to serve the San Antonio market area, and then shall further refine its analysis to identify, to the extent feasible, specific aircraft types based on existing airline fleets, announced new routes, and aircraft/routes that may be considered likely candidates to serve SAT in the near-term. This analysis shall include discussions with the City and will leverage the ongoing marketing intel the City has gained. Consultant shall also request and review data from Airport, tenants and airlines; develop aircraft fleet adjustment recommendations; and prepare technical reports of proposed aircraft fleet mix review for each program element.

#### *2.10 FAA Coordination – Reimbursable Agreements (RAs) for the Runway 13R/31L Shift/Lengthen/Decouple project*

This program will require a number of FAA Reimbursable Agreements over the course of the Work. Consultant shall assist the Airport with initiating RAs near the end of the environmental study efforts and in advance of the future design efforts. Consultant shall prepare draft letters for Aviation to submit to the FAA requesting initiation of one or more RAs. Consultant shall schedule regular meetings between the project team and the FAA in order to keep this process moving forward to obtain FAA approval as soon as possible. Consultant shall work closely with multiple FAA business lines such as NAS Planning, Engineering Services, and Flight Procedure and Flight Inspection to ensure they have all required data to meet publication dates and commissioning flight inspections throughout the duration of the project.

##### **Deliverables:**

Draft RA request letters and meeting notes for each meeting, and action item / tracking status sheets.

##### *Environmental Support/National Environmental Policy Act (NEPA) Compliance*

The Consultant shall prepare the NEPA compliant environmental documentation to support the design and construction of the program elements as described in this Scope of Services:

- Shift and extend Runway 13R-31L to its maximum justifiable length configuration (Northwest)

#### *2.11 Environmental Project Management, Coordination, and Support for Planning, Design and Construction*



### *Phases*

Environmental project management shall be included in the project management services described in Part 1 of this scope.

#### *2.12 Environmental Assessment for Runway 13R-31L Extension*

The Consultant will perform the environmental assessment in accordance with FAA and Airport current orders, practices, criteria, specifications, policies, procedures, and standards, including FAA SOP 5.1, or current version.

##### **2.12.1 Agency Coordination**

The Consultant will consult and coordinate with appropriate federal, state, and local agencies to obtain information concerning potential environmental impacts and maintain contact with these parties for the remainder of the NEPA process, as necessary.

The Consultant will coordinate with the TxDOT San Antonio District specific to the potential impact to the US 281 right-of-way from the Proposed Action to shift/extend the runway and the reconstruction of the FAA lighting bridge. The Consultant will also coordinate with TxDOT as a Cooperating Agency to adopt the EA document regarding any potential impacts to TxDOT's transportation facilities from the Proposed Action, if required.

##### **Anticipated meetings specific to agency coordination for NEPA documentation.:**

- Coordination meetings with local agencies (up to 3 meetings each with CoSA, VIA, Bexar County)
- Coordination meetings with TxDOT San Antonio regarding FAA Approach Lighting bridge and US 281 impacts (up to 3 meetings)
- It is expected that FAA shall provide an administrative section 163 part 3. The proposed agency coordination effort will be limited to filing.

##### **2.12.2 Data Collection**

The Consultant will collect, review and evaluate available and appropriate data pertaining to this project and/or the project area. This data may include but not be limited to:

1. Property Maps
2. Land Use Maps
3. Location of Public Buildings, Schools, Churches, Parks, etc.
4. Aerial/Infrared Photography, if Available
5. Historical/Archeological Site Listings
6. Digital Ortho Quad Maps
7. National Wetland Inventory Maps
8. County Soil Survey Maps
9. County Hydric Soils List
10. Floodplain Maps
11. Vegetation Cover Maps
12. Hazardous Materials Database Information
13. Demographic Maps/Census Information
14. Other Available GIS Data

##### **2.12.3 Draft Environmental Assessment**

The Consultant will produce a draft Environmental Assessment document in accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. Individual studies which are components of the Environmental Assessment will include analyses of the following sections 2.12.3.1 through 2.12.3.18 referenced in Attachment X:

- Project Description
- Purpose and Need
- Alternatives Analysis
- Air Quality
- Biological Resources
- Climate
- Coastal Resources [not required]

- Department of Transportation Act: Section 4(f)
- Farmlands
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historical, Architectural, Archeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise and Noise-Compatible Land Use
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Visual Effects
- Water Resources
  - Wetlands and Waters of the U.S.
  - Floodplains
  - Surface Water
  - Groundwater
  - Wild and Scenic Rivers
- Cumulative Impacts
- Irreversible and Irrecoverable Commitment of Resources
- Fish, Wildlife, and Plants

#### **2.12.4 Prepare Draft EA**

The Draft EA will be prepared and submitted electronically in accordance with all current and applicable FAA regulations, policies, standards and guidelines for the Airport and FAA review. The preparation of the draft EA will include a description of the proposed action, the purpose and need, and alternatives. This information will be summarized the EA from the work conducted in the early scoping and planning phases of the project. The draft EA will include an analysis of the No action, regulatory setting, affected environment, environmental consequences and mitigation, if required, for the following resource categories. The EA will be organized in accordance with the latest regulatory guidance.

The EA document attachments will include project exhibits, alternative locations, project photographs, applicable technical reports, state and federal species lists, agency coordination, and applicable public involvement records. Two (2) rounds of QA/QC will be done prior to submittal to the Airport for review.

#### **2.12.5 Revise Draft EA**

The Consultant will revise the Draft EA based on comments received from the Airport, FAA, and FAA legal review. This task does not include a public notice of availability.

#### **2.12.6 Public Involvement**

The Consultant will incorporate the results of the project planning and scoping phase to prepare the Public Involvement materials and conduct public involvement activities in accordance with 40 CFR § 1501.4(b) and 1506.6, CEQ Regulations. Stakeholders involved in the planning and scoping will also be invited to participate in the public involvement phase.

#### ***Meeting 1 - Public and Agency Scoping Meeting***

The Consultant will hold one (1) public and agency scoping meeting (on two separate days) at the beginning of Part 2 work efforts, in an open house format. The meeting will be an advisement of the EA. The Consultant will prepare a legal notice advertising the meeting for publication in English and Spanish in one local English and one local Spanish language newspaper. A formal presentation or other materials will be prepared following Industry Best Practices. Staff from the design team and the Sponsor's staff will attend for public questions. The meeting materials will also be available in a virtual meeting format online, through a link on the project webpage.

#### ***Meeting 2 - Public Meeting***

The Consultant will hold one (1) public meeting (on two separate days) to receive public comment on the Proposed Action, in an open house format, prior to the completion of the draft EA. The Consultant will prepare a legal notice advertising the meeting for publication in English and Spanish in one local English and one local Spanish language newspaper. No formal presentation will be prepared. Staff from the design team and the

Sponsor's staff will attend for public questions. The meeting materials will also be available in a virtual meeting format online, through a link on the project webpage.

***Deliverables:***

Prepare for, organize and attend/facilitate a public meeting. A public meeting summary report will be prepared following the meeting.

**2.12.7 Final EA**

Revisions, comments and/or additional items to the Draft EA from the Sponsor and FAA after the public involvement process(es) will be incorporated into the Final EA. The Final EA document will be submitted electronically for signature by the Aviation Department Environmental Stewardship Manager. This task does include public notice or circulation.

***Finding of No Significant Impact***

The Consultant will include the Finding of No Significant Impact from the FAA in the final document. This task does include a public notice and circulation in a local newspaper in English and Spanish.

***Deliverables:***

- The EA document and supporting documentation

***2.13 15% Schematic Development***

It is anticipated that there will be a 15% submittal for each program element. The plans associated with the 15% Design for each program element will generally include Geometrics, Initial Plan & Profiles, Preliminary Grading, Preliminary Electrical and NAVAID Design, & Utility Conflicts.

The Consultant shall perform the following tasks regarding the airfield improvements for the areas identified from the Advanced Planning. Based on the funding allocation, these program elements may be broken into multiple bid packages during subsequent design submittals. The following tasks associated with 15% include the following for each program element:

- Consultant will prepare the overall phasing plan for the entire program and define the individual projects or packages associated with each program element to aid in the procurement of FAA funding.
- Design the preliminary horizontal and vertical geometry for the entire project as defined by the Advanced Planning.
- Prepare and submit one (1) exhibit in electronic pdf format illustrating the horizontal and vertical geometry at a 15% Schematic Development level.
- Program the revised airfield lighting and guidance signs to meet the requirements of the AC and the modified Geometrics.
- Evaluate the utilities to identify potential conflicts and areas of concern that will need to be addressed during later design phases.
- Conduct an in-house quality control review of the horizontal and vertical geometry.
- Conduct two (2) review meetings with the Airport to discuss the 15% Schematic Development level. Each of these meetings will be over the shoulder reviews.
- As part of the 15% review meeting, the Consultant will perform a walk-through of the site to review the existing conditions survey and to identify potential conflicts with the design plan.
- Design to schematic levels the revised Approach Light Plane and system layout for 13R ALSF-2. 5kv loop design will meet current version of FAA TI 6850.87.
  - Design the revised Approach Light Plane and system layout for 31L MAL S to meet FAA standard drawing D-5240-2.
  - The Consultant will review siting criteria for the following ILS components: The Consultant will submit siting analysis and recommendations to FAA for review and approval based on determination of runway threshold relocation for the following ILS components.
  - 13R Localizer
  - 13R Glide Slope
  - 13R DME
  - 13R FFM
  - 31L Localizer

- 31L Glide Slope
- 31L DME
- 31L FFM
- 13R-31L RV

### **15% Schematic Development Exhibits**

The Consultant shall provide consulting and engineering services as follows: Perform overall electrical analysis of the Airfield Lighting Vault (ALV) Constant Current Regulator quantity and loading analysis of existing airfield/FAA lighting systems, cable insulation resistance measurements, equipment infrastructure, approved Airfield Marking and Signage Plan, SMCGRS Plan (if applicable). Based on collected data and proposed geometry alternatives, Consultant will review and layout 5kv circuiting configuration and evaluate use of LED fixtures and impacts to the ALV equipment and service size. Provide a summary of findings to airport with preliminary recommendations. Consultant will evaluate the existing lighting system and alternative solutions that consider sustainable and environmentally friendly options. Airfield Lighting, Electrical, Signage and NAVAID layout.

### ***Deliverables:***

- It is anticipated that there will be 15% design submittals associated with each Major Program Element.
- 15% design plans will include geometrics, vertical profiles, utility conflicts, electrical elements such as light fixture and signage layout, manhole and duct bank alignment and infrastructure demolition.
- Submittal for each program element will include roll plots of proposed geometrics and profiles of centerlines.
- Opinion of Probable Construction Costs estimate to aid in the determination of the following years' projects. Both a contingency and a design evolution percentage will be added to all 15% estimates.
- All submittals will be placed electronically on the project web site
- Review meeting notes in electronic pdf format to Airport staff and additional attendees
- Tracking sheet documenting ongoing comments and action items

### **Part 3 Design and Engineering**

The Consultant shall provide consulting and engineering services as follows:

Design and Engineering will be contingent on the results of Advanced Planning (Part 1). All design shall be performed in accordance with the latest FAA Advisory Circulars. This part will consist of Engineer's Design Reports, construction drawings, specifications, engineer's opinion of probable construction cost(s), schedule durations, quality control reviews and revisions, constructability reviews, over the shoulder review meetings with the Airport staff, Constructability Workshop, value engineering, review and finalization of the front-end bid documents (templates provided by the Airport). The Consultant will coordinate the project packages, as defined by Advanced Planning, for the contractor's permit, as well as the permit applications with COSA and SAWS. Many of these items will be completed along with each bid package and alternatives developed for construction.

#### **3.1 Administrative Services**

Consultant shall provide administrative tasks throughout the project including project planning, budgeting, schedules and updates, attend and chair review meetings, and prepare notes for all design meetings.

#### **Obtain Security Badges and Airfield AOA Driver's Licenses**

Key team members (any individual that will need access to the airport for more than 14 un-escorted days) shall obtain security badges and Airfield AOA Driver's Licenses for access to the Air Operations Areas (AOA) at the Airport for the purpose of conducting field investigations, geotechnical investigations, surveys, and field reviews for the design of the project, and access to the AOA during the construction phases. The Consultant shall provide an escort to any un-badged sub-consultants/contractors requiring access to the airfield and will coordinate with Airport Operations and/or Security to do so.

#### **Project Initiation and Quality Workshop**

The Consultant will lead the project initiation (or kickoff) meeting, with support from the Airport. This will be an on-site meeting to include Consultant's key staff and include meetings with the Airport and Air Traffic Control Tower (ATCT) personnel. The kickoff will include field reconnaissance of the site.

Separately and in coordination with the Airport, the Consultant will prepare for and host a Quality Workshop that will consist of preparing an agenda, coordinating invitees, providing meeting notices, preparing handouts and workshop materials, conducting the meeting, key staff attending the meeting, and preparing and distributing workshop summary notes.

#### **Deliverables:**

- An initial agenda will be distributed for review prior to the meeting.
- Meeting summary notes and other results will be developed and forwarded to attendees for review and comment.

#### **Work Planning**

The Consultant shall develop a program work plan with individual projects for project team use in the execution of the project. The Project work plan will include, but not be limited to, the following: contract; Scope of Services; terms and conditions; schedule; Quality Control Plan; organizational chart; identify each team member, their role and contact information, lines of communication, and program and project schedules. The schedule(s) identifies the internal and external deadlines, and the schedule of quality control input and reviews. The schedule will be updated semi-monthly (twice a month) and distributed to the team. The Consultant will provide support efforts to the Airport for the development of updates to the City Capital Improvement Plan (CIP) and FAA Airport Capital Improvement Plan (ACIP). Meetings are estimated to be up to four (4) annually.

#### **Deliverables:**

The Consultant will submit one (1) bound copy and one (1) electronic copy of the work plan to the Airport in draft form within two weeks of the NTP, and electronic copy of the final work plan incorporating the Airport's comments within one week of receipt of the comments. This work plan will be updated as needed and will be stored on the project website or other project shared access platform as determined by the Airport.

#### **Progress Meetings / Reporting**

The Consultant will be responsible for the preparation of design and planning review meetings, progress reports, preparation of agenda, coordination of invitees, meeting notices, preparation of handouts including dashboards

printouts, conducting the meeting, preparation and timely distribution of meeting notes, and tracking action items resulting from the meeting.

### *3.2 Project Web Site Development*

A project website or SharePoint will be developed to share and transfer large files, store past documentation, and provide a location to identify current information for the project.

At a minimum, items such as meetings will have the identified date, agenda to the meeting, recording of the meeting, meeting notes, and action items from this meeting all located within the same file. Report or plan submittals will include the original submittal or draft form, comments (both internal and external) on that specific item if any, and the final submittal. In addition to meeting notes, reports, and submittals, all documentation from this project will be posted to this site for project Stakeholder access. The security of the site will include a login and a password that will be presented to each stakeholder. The stakeholders will include the Consultant design team, Airport staff members, FAA, and others as identified in the project process.

During the kickoff, the storage location will be evaluated to determine the capability of retaining the size and amount of information to be retained as well as the ability to retain this information for extended periods of time. The Consultant is already evaluating these alternatives and will have a recommendation for the Airport upon NTP.

This location will also include a dashboard where staff can interact with all current information for the project including, budgets for the prime and subconsultants as a whole and broken down into individual projects, project schedule showing where we are at on all items to date, along with upcoming tasks and meetings.

- We will develop standard operating procedures for the processes and use of the document management system.
- Train users on how to use the document management system and hold two (2) group training sessions and individual follow-up sessions as required.

### ***Deliverables:***

A project website or SharePoint will be developed within one week of the NTP for project stakeholders to use/access as necessary for project communications. Modifications to this website will be made following the first meeting and throughout this project to incorporate comments made by the project stakeholders.

### *3.3 Program Coordination*

The Consultant program manager and support staff will coordinate with the Airport project management and public relations staff with regular meetings to inform internal and external stakeholders. Meeting frequency will be defined based on Major Project Elements and package definition. Coordination efforts will consist of meeting agenda and PowerPoint presentation development. Presentations may consist of Program Updates, Program Element Updates, Construction Package Updates (progression of planning, design, and/or construction), major milestones, Program Schedule, and Industry Engagement. Program Coordination efforts will be performed by program manager, program controls, and program scheduler. Program Coordination may consist of support services provided by technical, administrative, and support personnel.

### ***Deliverables:***

Meeting agendas, meeting notes, project milestones, project presentation, presentation delivery, update to project documentation library, exhibits, and compilation of identified action items and subsequent tracking.

### *3.4 Program Schedule Updates*

Based on consultation with the Airport for internal and external deadlines and known scheduling requirements, Consultant shall update or expand the critical path schedule for the overall program. An initial program schedule will be presented to the Airport at the project kickoff meeting and included in the meeting notes. This schedule will then be updated for each meeting and included on the project website for all stakeholders to utilize when needed.

Schedule critical dates will be based on information identified in each work phase under these scope of services. The Consultant shall coordinate with the Airport, internal stakeholders, and external stakeholders to establish and adjust Project milestones for each task throughout the duration of these scope of services.

***Deliverables:***

The Consultant will submit to the Airport eight (8) copies of an 11”x17” bar chart schedule using Microsoft Project. All tasks identified in this scope will be included in the schedule. The schedule will be updated with each meeting, delivered to the team in hard copy, and posted in pdf form. On a case-by-case basis, Consultant will provide schedules in a different format at the Airport’s request depending on legibility and audience.

***3.5 FAA Coordination and Meetings***

The Consultant will coordinate and host meetings with the FAA ADO staff to obtain high-level and design-level input on the Design portion of this program for a period of one (1) year of this project. This task will be utilized to engage the FAA ADO on a regular basis to discuss program, document decisions and concurrence, and strategize the overall progression of the program. The Consultant will assist SAAS in the preparation of the ACIP and attend ACIP and program meetings on site at the ADO/Regional office quarterly for one (1) year.

***Deliverables:***

Meeting agendas, meeting notes, project milestones, project presentation materials, update to project documentation library, exhibits, and compilation of identified action items and subsequent tracking.

***3.6 Airport Stakeholder Coordination Meetings***

The Consultant will coordinate and host up to four (4) on-site meetings with key airport stakeholders for Design specific needs to provide a high-level update and engagement on the program for one (1) year. This task will be utilized to engage specific and/or groups of stakeholders on the solicitation of required input, concurrence, and decisions.

***For Design Purposes***

The Consultant will meet quarterly (starting 1 Year from the NTP for 1.5 years) with airport tenants to keep them informed of the current progress of the planning and design. This will include schedules, planned closures, phasing options, and current issues. We will work with the tenants to identify any concern related to the overall and specific program and work to eliminate these items.

***Deliverables:***

Meeting agendas, meeting notes, project milestones, project presentation materials, update to project documentation library, exhibits, and compilation of identified action items and subsequent tracking, and uploaded to the shared Site.

***3.7 Monthly Coordination Meetings***

Once a month for one (1) year, meetings will be held with the Airport and Consultant’s Key Staff for general program coordination. These meetings shall include the stakeholders associated with this project including City and Airport team members, FAA tower and ADO staff, and the general Consultant project team members to resolve questions and obtain answers to clarify design considerations and operational impacts of the project. The overall program and individual program element schedules will be reviewed at each meeting including the current status on program element and/or package completion and review of major milestone dates. Meeting agendas will also include identified design considerations critical to the implementation of the program and program elements. These analyses, reports, alternatives, investigations, workshops, and meetings conducted under separate sub-parts will be summarized for the monthly meetings to provide the Airport with various options, alternatives, and improvements, and lessons learned which will be considered in the preparation of design documents.

***Deliverables:***

Agendas, notes, project milestone schedules, action items, exhibits, or status reports as necessary.

***3.8 Airline Manager Meetings***

The consultant will prepare for and provide documentations such as presentation materials and talking points for monthly airline manager meetings for one (1) year to keep them informed of the phases, the planned changes in phases, and the potential impacts to air traffic and/or airport operations. These meetings will be prepared for and attended by the airport. The Consultant will include plans and/or exhibits to denote the changes to operations and how this will affect the airlines.

***Deliverables:***

Presentation documents will be provided to the airport in electronic format.

### *3.9 Executive Meetings*

Executive-level meetings will be held once per month for one (1) year and will be attended by the Program Manager, Project Manager, and Deputy Project Manager. These meetings will be attended by senior members of the Airport staff or others as directed, to provide status updates (scope, schedule, budgets), alternatives and recommendations, and solicit executive input. Key Consultant staff including a Senior Aviation Principal will be on hand every other meeting to discuss the project as well as additional items as requested by the executives.

#### ***Deliverables:***

Meeting agendas and handouts, meeting notes, project presentation materials, update to project documentation library, exhibits, and compilation of identified action items and subsequent tracking, and uploaded to the project shared site.

### *3.10 Contractor Information Meetings*

Under this task, contractors that express interest in bidding on this project and contractors that have most recently been responsible for major airside construction work will be publicly invited to attend individual informational meetings during the course of the design of the project.

One meeting will be held for each individual construction project or package in an open public forum to increase potential bidders in their knowledge of the project, to establish general production rates for different construction activities, and to provide a forum for discussing construction process recommendations. These “lessons learned” will be evaluated for their applicability on this project and incorporated accordingly. Additional contractor information meetings will be programmed with the addition of additional project specific scopes.

#### ***Deliverables:***

A report will be developed for inclusion in the package-specific EDR. This report will identify lessons learned as well as potential recommendations from meeting to be incorporated into the design.

### *3.11 Program Outreach*

The Consultant will assist SAT by developing meeting materials to share information on Program Elements and anticipated future construction packages. The intended use of these materials is for public workshop forums (virtual and in-person) for neighborhood alliances or community organizations and for SAAS Small Business outreach efforts (Industry Day)..

#### ***Deliverables:***

Meeting agendas and handouts, meeting notes, project presentation materials, update to project documentation library, exhibits, and compilation of identified action items and subsequent tracking for the public workshop forums..

### *3.12 Program Management Key Staff*

For one (1) year, all services and/or phases of assigned individual programs and projects will require close interaction and coordination with the Airport Staff, airport contractors as directed, airport tenants, airlines and other stakeholders, external agencies, and local and regional Federal Aviation Administration (“FAA”), and the Transportation Security Administration (“TSA”). The Consultant will be responsible for compliance with all applicable, and current at time of Notice to Proceed, TSA and FAA Advisory Circulars, Orders, and other airport and regulatory guidance documents as well as all federal, state, and local laws.

#### **Program Manager**

For one (1) year, the Program Manager role will serve to lead the program management support services to support, coordinate, provide multiple levels of program management expertise for the AEDS program at SAT. the Program Manager will coordinate with SAT’s Executive Leadership Team, Department of Aviation Staff, City Staff, Project Manager, Deputy Project Manager, and concurrent SAT programs. The Program Manager will coordinate with the new Construction Development Officer (CDO) and interface with concurrent SAT programs that may have technical interface with the AEDS program.

#### **Program Controls**

For one (1) year, the Program Controls personnel will be responsible for maintaining program document and controls organization. Program Control personnel will be responsible for maintaining the Project Website and Project Data Archives. This role is responsible for implementing the mutually agreed business process, automated workflows, and will coordinate with the Program Manager and Program



Scheduler. The role will establish document control metadata and taxonomy requirements, establish workflows related to contracting, change orders, payment documentation, estimating, performance measurement, develop report templates and production for the monitoring of program performance, create and maintain monthly reporting to reflect budget, encumbrances, invoices, DBE participation, cost-to-complete estimates, budget variances, and schedule progression. The role will be responsible for the monitoring and control of security rights for the program data storage.

**Program Scheduler**

For one (1) year, the Program Scheduler will serve the program in providing program planning, scheduling, monitoring, performance measurement and reporting, and schedule quality review. Program Scheduler will provide subject matter expertise on identifying critical path efforts. Program Scheduler will be responsible for developing Gantt Schedule documentation using Microsoft Project. The Program Scheduler will lead the development of a program schedule baseline in coordination with SAAS, Project Manager, and Program Manager. Program Scheduler will develop timing, durations, and critical path elements, and package schedules. Program Scheduler will review and analyze design and construction milestones; identify impacts to change in schedule, implement schedule best practices, implement program schedule reporting, and interface with Project schedulers.

***Deliverables:***

An SAAS-approved Program Manager, Program Controls, and Program Scheduler will be provided for the specified duration.

***3.13 Program Quality Control Workshops***

The Consultant will host formal Program Quality Control Workshops for major milestone deliverables (60%, 90%, and IFB). Each Program Quality Control Workshop will consist of a four (4) step process. Step 1: Primary Production development of Plans, Specifications, Engineer’s Design Report, Permit Matrix, Renderings, and KMZ model; Step 2: Quality Control and Quality Assurance Team Review Session consisting of an interactive Bluebeam REVU session, interdisciplinary review by Subject Matter Specialists, Constructability Review, Error and Omission Review, FAA Standards, Authorities Having Jurisdiction Standards; Step 3: QC/QA Briefing with Primary Production, debrief on Bluebeam REVU comments, Technical Changes, Concurrence Memorandum, Standard Review, and After Action Review; and Step 4: Primary Production archiving of milestone files (CAD, calculations, models, etc.) revision of Plans, Specifications, Engineer’s Design Report, Permit Sets, and REVU comment checklist. Each Program Quality Control Workshop will have a review team that will consist of subject matter specialists that are separate from the core primary production team. Quality Control Workshops will be open to the attendance of Airport Staff.

***Deliverables:***

Milestone Program Quality Control Workshops consisting of agenda, Bluebeam REVU sessions, memorandum of review, QC/QA Debrief Meeting, and electronic archive of review comments. Milestone Program Quality Control Workshops at a minimum will be attended by Project Manager, Program Manager, and designated Quality Control / Quality Assurance Managers.

***3.14 Regional Industry Study (Yearly - Update)***

The Consultant will update a comprehensive analysis of the current construction industry as it directly and indirectly affects airfield improvement projects. This analysis will include, but will not be limited to, identifying current large projects (Greater than \$10 Million) within the region (DFW, AUS, HOU, and SKF) and what agency (FAA, City, County, State) is letting them, upcoming and planned projects within the region, workforce, local material costs and rates, projected material rates, current inflation rate and other industry trends. This information will be documented in a report along with a forecasted inflation rate for evaluation. The report may include detailed collection of recent bid tabulation of projects of similar and/or related scope. The Consultant will also reach out to local industry groups such as the American Concrete Pavement Association, local trade groups, contractors associations, etc. The Consultant will also contact a number of individual contractors and subcontractors locally to see how they are positioned with manpower and equipment to develop these projects. This regional industry study will be evaluated and updated yearly.

The Consultant will review and comment on this report upon each submittal. Once the report is deemed acceptable, the Consultant will forward it to the Airport for review.

**Deliverables:**

A yearly Regional Industry Study Report – An Electronic copy will be uploaded to the Project document library.

*3.15 Topographic Surveys*

Horizontal and vertical control will be established using Primary Airport Control. Additional benchmarks will be located within the project locations for secondary control. No boundary related surveys including ROW calculations and documentation are included.

A topographic survey of the project areas is defined for this program and is subject to expansion based on the progression of Part 2 Advanced Planning. The limits of the survey are shown in the attached figure(s).

**Kick-off Meeting**

Consultant will attend one (1) kick-off meeting prior to commencing the field work to address points of contact, access points to the work site, badges and escort requirements, procedures to access/cross runways, time frames that will be allotted to perform survey work on the runway, inclement weather restrictions, vehicle lighting / flag requirements and other specifics that may not be mentioned herein.

The topographic survey will include:

- All pavement slab corners taken at a 25 foot by 25-foot grid at a minimum or at slab corners on pavement, at a minimum a 50-foot grid off pavement.
- Cross sections will be taken at a maximum of 50-foot intervals to include major grade breaks.
- Any grade breaks, channels, ditches, edge lights, electrical structures, hand-holes for electrical system, in pavement centerline lights, guidance signs and pavement markings.
- Runway and taxiway lighting fixtures and system infrastructure.
- Drainage structures to include inlet/outlet structures, structure size, manholes (top elevations), pipe sizes, invert elevations and directions.
- Underground utilities, including water lines, sanitary sewer system, telephone lines, and FAA lines.
- Surveyed locations for all pavement cores.
- Temporary control points (benchmarks) shall be placed for each project within the infield areas for use at a later time. These markings shall be placed a within 400ft of the limits of each project:

Consultant will establish a network of Primary Control Points (PCPs) encompassing the survey limits by GPS observations tied to the existing on-site monument. Vertical control will be established by GPS observations of a PCP with differential leveling run through all other control and benchmarks.

Airport will provide access to the airfield during daylight hours, when available. Definite times and dates will be coordinated with Airport Operations and Properties to work around airline schedules.

Final construction surveys will be required at the final completion of each construction project.

**Deliverables:**

A surveyor's report containing the final survey control and copies of the survey field notes will be provided. The report will be sealed by a registered surveyor. The field gathered data will also be provided in electronic format as an ASCII file.

Consultant will provide a CADD file in AutoCAD format of the data collected in the topographic survey. The file will be a 3D file containing the DTM the TIN, as well as break lines and contours. The 2D file will have ground features and subsurface features annotated, and provide a description with x, y, z, values for control monuments set within the project limits.

**Review**

Consultant will review the survey for formatting, standards, and completeness. Consultant will verify the point files as they are provided and perform a field walk for verification once the survey has been completed.

*3.16 Geotechnical Services*

The Consultant will locate the borings, will coordinate all requirements for driller access, and will visually classify recovered samples. Soil classification tests will be completed in accordance with FAA requirements. Soil interpreted to be clay in the field will be sampled by either pushing a thin-walled tube (ASTM D 1587) or

with a split barrel sampler while performing the Standard Penetration Test (ASTM D 1586). Soil interpreted to be sand or gravel in the field will be sampled with a split barrel sampler while performing the Standard Penetration Test (ASTM D 1586).

If groundwater is encountered, the groundwater levels within the open borehole will be recorded at the time of drilling and immediately following drilling. The boreholes will be backfilled with cuttings generated by drilling operations after completion of drilling. The pavement void will be filled with cold patch or non-shrink grout as appropriate and approved by the airport.

Laboratory testing will be performed on recovered samples selected by the geotechnical engineer to aid in soil classification and to measure engineering properties. Laboratory testing is expected to include moisture content, Atterberg limits, fines content, and unconfined compression strength testing. The actual laboratory program will depend upon the type of soils encountered.

Consultant will issue an electronic copy of the formal engineering report prepared by a licensed professional engineer in Texas that will include:

- Description of the field exploration program
- Description of the laboratory testing program
- Soil boring plan that depicts borehole locations on a base map
- Soil boring logs with soil classifications based on the Unified Soil Classification System (ASTM D 2487)
- Description of site geology based on location of the site on the Geologic Atlas of Texas
- Generalized site stratigraphy and engineering properties developed from field and laboratory data at the explored locations
- Depth where groundwater was encountered during drilling and its potential impact on construction
- Site Class Determination based on Table 1613.5.2 and 1613.5.5 of the International Building Code (latest edition)
- CBR test results and other laboratory test data will be included for the FAA pavement design
- Soil stabilization measures will be included for expansive clay soils in the new and reconstructed pavement areas

### **Review**

The Prime Consultant will review the Geotech Report for format, and completeness. Written questions and comments about the findings will be provided to the Geotech Firm within 1 week of submittal. Any area identified to be a possible issue will be brought to the attention of the airport immediately. Once the comments have been addressed and are acceptable to the Consultant, this report will be provided to the airport for review. The final Geotech Report will be uploaded to the project document library.

#### *3.17 Functional Condition Evaluation of Airfield Pavements*

The Airport will provide a survey-accurate map of distresses from the Pavement Maintenance Management Program, each distress will be identified and mapped for use in the rehabilitation. The Consultant will perform a field validation assessment of the distress mapping deliverables provided by the airport. The distress mapping deliverables shall consist of a GIS database and spatially projected AutoCAD map with each distress mapped, identified (distress rating and severity), and dimension data. Once this information is gathered, a plan for rehabilitation will be developed and implemented on plan sheets. If data is inadequate for the design-level development of rehabilitation, further evaluation and mapping of distresses may be required.

### ***Deliverables:***

A summary of the findings and the recommended rehabilitation will be provided to the Airport.

#### *3.18 Structural Evaluation of Airfield Pavements*

The Consultant will perform a structural evaluation of select airfield pavements that will consist of nondestructive testing (NDT) using a Heavy Weight Deflectometer (HWD), structural analysis of existing pavement layers, development of aircraft fleet mix and pavement utilization, and determination of remaining structural life of designated airfield pavements. The Consultant will coordinate the performance of NDT testing on select airfield pavements. Nondestructive testing will acquire quantitative data in accordance with FAA AC 150/5370-11B "Use of Nondestructive Testing in the Evaluation of Airfield Pavements" and for structural remaining life analysis per FAA AC 150/5320-6G "Airport Pavement Design and Evaluation".

### **Field Investigation and Data Collection**

The Consultant will coordinate the NDT data collection for “Project-Level” testing. Mid-slab testing will be conducted at several different offsets, alternating left and right of centerline, for each designated pavement area. Load Transfer Efficiency (LTE) testing will be periodically conducted at the transverse joints.

### **Structural Analysis**

The Consultant will rely on aircraft fleet mix data provided by SAT. The Consultant will develop up to five (5) scenarios to analyze the sensitivity of the remaining life of the existing pavement section. This data will identify current future aircraft by model, weight, forecasted departures, and utilization data for each runway. Remaining structural life computations will be completed for each pavement section utilizing FAA software, FAARFIELD. Subconsultant will utilize the existing pavement thickness and composition information and aircraft traffic information provided by the Port in conjunction with the results of the back calculated elastic modulus of the subgrade to complete the remaining life computations. Deliverables will include FAARFIELD files.

### **Deliverables:**

A summary of the findings and the recommended rehabilitation based on the remaining structural life will be provided to the Airport.

### **Review**

Consultant will review the Structural Analysis. Written questions and comments will be provided within 1 week of submittal. Any area identified to be a possible issue or concern will be brought to the attention of the airport immediately. Once the comments have been addressed and are acceptable to the Consultant, this report will be provided to the airport for review. The final report will be uploaded to the project document library.

#### *3.19 30% Submittal*

The plans associated with the 30% Design for each program element or project will generally include Geometrics, Initial Plan & Profiles, Preliminary Grading, Preliminary Electrical and NAVAID Design, & Utility Conflicts. The Consultant will perform the following tasks regarding the airfield improvements for the areas identified from Part 1 Advanced Planning. The phasing of all packages will begin at this level and progress to bid-ready documents once required studies have been completed and the funding allocation has been determined. Based on the funding allocation, these program elements may be broken into multiple bid packages during subsequent design submittals. The following tasks associated with 30% include the following:

#### **3.19.1 Project Plans**

Plans for the 30% design submittal will include the following:

- Cover Sheet
- Index of Drawings
- Project Key Map
- Symbols, Legends, & Abbreviations
- General Notes
- Project Layout Plan
- Existing Conditions
- Demolition Plan
- Typical Pavement Sections and Details
- Geometric Layout Plan
- Centerline Plan and Profile
- Grading and Drainage Plan
- Pavement Marking Plan
- Electrical Layout Plan
- Electrical Demolition Plan

#### **3.19.2 Specifications**

The 30% Specifications will consist of a listing of the anticipated Technical Specification sections.

#### **3.19.3 Engineer’s Opinion of Probable Construction Costs**

The Consultant will perform estimated quantity take-offs and prepare an opinion of probable construction cost

(OPCC) based on current bidding climate and trends of material and labor prices. A contingency and a design evolution percentage will be included.

#### **3.19.4 Preliminary Engineering Report**

The Consultant will prepare a preliminary engineering report for each construction package that includes findings from the data collection and site visits, survey investigation and temporary monument locations, pavement design, utility conflicts, geotechnical findings, design parameters, preliminary layouts, sketches, any anticipated modifications of standards, and recommended design criteria.

#### **3.19.5 Quality Control Review**

The Consultant will conduct an in-house quality control review of the 30% submittal prior to submission to the Airport. The quality control review will include members of the Consultant's staff for peer and constructability reviews who have had no involvement in the project but will be matched to their specific expertise to review the project efficiently. It is anticipated that Bluebeam software will be used to gather all comments in one general location. This information will be kept on file.

#### ***Deliverables:***

- The Consultant will supply five (5) 11"x17" sets of Project Plans, with electronic copy to the FAA for review.
- List of Anticipated Technical Specifications with electronic copy to the FAA for review.
- Preliminary Engineering Report (EDR) with electronic copy to the FAA for review.
- All submittals will be placed electronically on the project web site
- Meeting notes distributed in electronic pdf format
- Tracking sheet documenting ongoing comments and action items

#### ***3.20 Pavement Design Analysis & Report***

Consultant will prepare a pavement design report incorporating the findings from the data collection and site visit work in Part 2 & 3 above. Consultant will evaluate the pavement section for each area of improvement. The pavement design will be in accordance with FAA Advisory Circular 150/5320-6G (or latest version), using the FAA's FAARFIELD 2.0 computer program. The pavement design report information also will be utilized to determine thickness of various pavement layers required. Consultant will factor in the existing pavement sections for the various runway and taxiway pavement during the pavement design analysis. This report will be included with the engineer's design report for each pavement section recommended. Special consideration will be given for the planned increase in aircraft size.

#### ***3.21 Review Meetings***

Following each submission, the Consultant will present the deliverables during an in-person "over the shoulder" review meeting to expedite the process and keep the project moving. The Consultant will prepare and distribute meeting notes to the group for review. The Consultant will provide the Airport with a document tracking the comments made and identified during the design phase as well as the solutions or resolution to these items.

#### **30% Review**

Following the 30% submittal, Consultant will prepare for and conduct one (1) review meeting with the Airport and stakeholders. Consultant will gather and record all stakeholder comments on the 30% submittal and prepare and distribute meeting notes for the meeting.

#### **60% Review**

Following the 60% submittal, Consultant will prepare for and conduct one (1) review meeting with the Airport and stakeholders. Consultant will gather and record all stakeholder comments on the 60% submittal and prepare and distribute meeting notes for the meeting.

#### **90% Review**

Following the 90% submittal, Consultant will prepare for and conduct one (1) review meeting with the Airport and stakeholders. Consultant will gather and record all stakeholder comments on the 90% submittal and prepare and distribute meeting notes for the meeting.

#### ***Deliverables:***

- All submittals will be placed electronically on the project web site

- Meeting notes distributed in electronic pdf format
- Tracking sheet documenting ongoing comments and action items

### *3.22 Value Engineering*

Prior to delivery of the 60% submittal, Consultant will carry out an internal value engineering (VE) review. The VE review will be carried out by a small group of senior design and construction professionals who have experience in this project type but have not been a part of the project delivery team. The VE review will evaluate potential changes for pavement section design, material substitutions, and construction phasing that could maintain capability while reducing overall project price. A report summarizing the VE alternatives and recommended VE options will be prepared and distributed to Airport stakeholders for review and input. Comments from stakeholders will be received and analyzed. Timing of the review will be such that any decisions resulting from the review may be incorporated in the 60% design submittal.

#### ***Deliverables:***

The Consultant will submit a VE summary report not to exceed 25 pages in length to the Airport for final coordination with stakeholders.

### *3.23 Jet Blast Analysis*

The Consultant will conduct Jet Blast analysis for up to two (2) phasing/construction scenarios in AviPlan (idle and breakaway thrust, as appropriate) for each of the following:

1. Runway 13R-31L Keel Reconstruction

### *3.24 60% Submittal*

The 60% submittal will be an ongoing process completed with the development of project plans and specifications for construction. Building on the 30% review, the project team will re-evaluate each area proposed for current package and develop plans and specifications optimizing the available funding for that year. The Consultant will perform the following tasks:

- Evaluate the upcoming years planning budget and coordinate the limits of the upcoming projects for review by SAT
- Prepare and submit the airspace submission, FAA Form 7460 and/or 7480, to the FAA for approval for each project when the limits have been approved
- Coordinate with the ATCT personnel on any updates that may be required for the update of software for the lighting system (ALCMS)

#### **3.24.1 Project Plans**

The updates for 60% include the following:

- Update the horizontal and vertical geometry design
- Develop sheet notes and legends
- Update existing conditions plans using the topographic survey information and findings from the field verification task.
- Update preliminary airfield demolition plans for the project and coordinate spoil areas for removed material such as granular materials, concrete, structures, and lighting. Although the demolition plan design does not include design for removal or handling of contaminated or hazardous materials, notes will be provided on the demolition plans and safety phasing plans to direct the contractor on handling contaminated soil.
- Update horizontal pavement geometric layouts
- Develop Runway and Taxiway pavement profiles, elevations, and site grading plans for the proposed work.
- Develop joint layouts and details
- Develop airfield grading and drainage design including storm drainage profiles and details, and details
- Develop preliminary utility plans for relocation or reconstruction of utilities in the project limits. These would include but not be limited to Storm Sewer, Sanitary Sewer, FAA cables, and Telephone cables.

- Update the pavement typical section for the runway and taxiways.
- Update pavement marking plans showing the layout of runway and taxiway markings. Coordinate with sign layout plans.
- Update soil erosion and sediment control design.
- Dimension lighting, signage, and conduits/ducts
- Update lighting & conduit layout
- Develop any temporary jumper cable layout for phased construction
- Develop Junction Can, Pull Box, and Manhole modification/replacement details
- Develop light/signage identification and fixture installation schedule
- Develop electrical load calculations
- Develop electrical vault equipment modifications
- Develop ALCMS modifications as appropriate
- Develop runway and taxiway design edge lighting and guidance sign layout and details
- Coordinate with existing utilities
- Develop airfield lighting and signage details and electrical manhole and hand hole details using standard details

The minimum construction drawings for each major program elements are outlined in the following table. Specific sheets are subject to package specific details, funding, and phasing.

**Minimum Construction Drawing Sheet Types**

Cover Sheet	Electrical Scope of Work (1)
Index of Drawings	Electrical Abbreviations, Legend, and General Notes (1)
General Notes	Temporary Airfield Electrical Plans & Details (3)
Symbols, Legends and Abbreviations	Electrical Key Plan (1)
Summary of Quantities	Electrical Layout Plan (6)
Construction Safety Details	Circuit Homerun Plans (2)
Project Layout Plan	Circuiting Plans (10)
Project Site Map with all project limits	Lighting Fixture Schedules (3)
Horizontal and Vertical Control Plan	Sign/Handhole Schedules (2)
Operational Plan & Notes	Lighting Vault Plan (1)
Operational Plan Details	Lighting Vault Details (1)
Project access Plan	Manhole/Handhole Details (2)
Contractor Haul Routes	Guidance Sign Details (2)
Overall Phasing Plan	Fixture Details (3)
Project Schedule of Durations	Ductbank/Conduit Details (2)
Phasing Plans	Cable Splicing Details (1)
Phasing Details	Miscellaneous Electrical Details (1)
Existing Conditions	Airfield Electrical Demolition Plans (8)
Demolition Plan	Electrical Scope of Work (1)
Typical Pavement Sections and Details	Electrical Abbreviations, Legend, and General Notes (1)
Geometric Layout	Temporary Airfield Electrical Plans and Details (3)
Centerline Plan and Profiles	Electrical Key Plan (1)
Pavement Joint Layout Plan	Electrical Layout Plan (6)
Pavement Joint Details	
Pavement Elevation Plan	
Grading and Drainage Plan	
Grading and Drainage Details	
Storm Drain Structural Details	
Utility Plans	ALCMS Modifications
Utility Details	ALCMS Details
Grooving Plan	
Grooving Details	
Existing Pavement Markings	Storm Water Pollution Prevention Plan (Cover)
Pavement Marking Plan	Storm Water Pollution Prevention Plan
Pavement Marking Details	Storm Water Pollution Prevention Plan Details

**3.24.2 Specifications**

The Consultant will prepare technical construction specifications according to the most recent FAA AC 150/5370-10H – “Standards for Specifying Construction of Airports” including FAA Standard and General Provisions along with Special Provisions as necessary for the project. In addition, the specifications will include



COSA issued documents that will be included within the overall specification package. These will include at a minimum, bidding documents and information, City and Federal requirements and federal wage rates. The consultant will coordinate with the airport for this inclusion and any modification required for each package. Specifications will be coordinated and consolidated across all disciplines for the proposed project.

The 60% Specifications will include the following:

- Front End Documents
- COSA General Conditions
- FAA General and Special Provisions
- SAT Supplemental Conditions and Security Plan
- Technical Specifications

### **3.24.3 Engineer's Opinion of Probable Construction Costs**

The Consultant will perform estimated quantity take-offs and prepare an opinion of probable construction cost (OPCC) based on current bidding climate and trends of material and labor prices. A contingency and a design evolution percentage will be included.

### **3.24.4 Engineer's Design Report (EDR)**

The Consultant will prepare an engineer's design report for each construction package that includes findings from the data collection and site visits, survey investigation and temporary monument locations, pavement design report, electrical load calculations, pavement geometrics, pavement markings, utility adjustments or conflicts, geotechnical reports, design parameters, preliminary layouts, sketches, any modifications of standards, and recommended final design criteria. The Consultant shall update text, graphics, and calculations related to the design elements for the EDR for each of the multiple bid packages. The engineering design report will be submitted by Consultant to the Airport and copied to the FAA.

The 60% Engineer's Design Report will include the following:

- Submit updated EDR with record of decisions and any changes or issues discovered since completion of the 30% EDR.

### **3.24.5 Construction Safety and Phasing Plan (CSPP)**

Consultant will prepare a CSPP and associated notes pertaining to the project work limits. Consultant assumes that one sheet with notes and details will be required for the overall phasing plan within this document. The FAA-required CSPP also will be prepared by the Consultant in accordance with FAA AC 150/5370-2G, "Operational Safety on Airports During Construction" (or latest version). The CSPP will consist of the phasing plans as well as an overall plan showing contractor haul routes and staging/stockpile areas with latitude/longitude coordinates. The CSPP will include narrative to document proposed compliance with the 19 categories listed in the aforementioned AC.

The 60% CSPP will include the following:

- Complete CSPP in accordance with the FAA outline

### **3.24.6 Constructability Review**

The Consultant will conduct an in-house constructability review of the 60% submittal prior to submission to the Airport. This review will include Consultant staff with construction experience that are familiar with aviation work. These staff will review the plans for constructability and new construction related items. Bluebeam software will be used by the Consultant to gather all comments in one general location. This information will be kept by Consultant for records.

Consultant will host a Constructability Workshop that will consist of Project Manager, Deputy Project Manager, Program Manager, Quality Control Manager, Subject Matter Experts, Airport Staff, FAA ADO, FAA AAS-110, Construction Organizations (American Concrete Paving Association), and additional airport industry staff prior to the 60% submission to the Airport.

### **3.24.7 Quality Control Review**

The Consultant will conduct an in-house quality control review of the 60% submittal prior to submission to the Airport. The quality control review will include members of the Consultant's staff for peer and constructability reviews who have had no involvement in the project but will be matched to their specific expertise to review the

project efficiently. It is anticipated that Bluebeam software will be used to gather all comments in one general location. This information will be kept on file.

***Deliverables:***

- The Consultant will supply five (5) 11”x17” sets of Project Plans, with electronic copy to the FAA for review.
- Technical Specifications with electronic copy to the FAA for review.
- Engineer’s Design Report (EDR) with electronic copy to the FAA for review.
- Construction Safety and Phasing Plan (CSPP) with electronic copy to the FAA for review.
- All submittals will be placed electronically on the project web site
- Meeting notes distributed in electronic pdf format
- Tracking sheet documenting ongoing comments and action items

***3.25 Safety Risk Assessment***

The Consultant will incorporate the Airport’s Safety Management System (SMS) process following the 60% submittal in evaluating design and construction phasing/sequencing alternatives. It is anticipated that one (1) SRA will be performed. The timing and topics for the SRA will be recommended by the Consultant based on discussions and coordination with Airport staff.

The Consultant will provide a facilitator or “safety manager” in accordance with FAA AC 150/5200-37, “Introduction to Safety Management Systems (SMS) for Airport Operators” (most current version). The facilitator will be a Consultant project manager with Safety Risk Assessment (SRA) experience.

The Consultant will gather past SRAs completed at this airport and develop a list of historical hazards and associated mitigations.

**Preplanning for the SRA (Assemble the SRA Panel and Data Collection)**

In collaboration with the Airport Safety Manager and the Airport’s established policies and procedures, the Consultant will recommend the formation of an SRA Panel. This panel will include Airport & City Staff, FAA Tower, FAA Regional, FAA Headquarters, National Planning Experts, and additional stakeholders. The Consultant will coordinate and develop with Airport staff on statistics and data that would be helpful for an efficient SRA.

The Consultant will work with the team to develop a preliminary set of hazards that will be the starting point for the SRA in each option.

**Set Date and Time for SRA**

The Consultant will coordinate/schedule the SRA Panel to conform to the Airport’s preferred format of two half-day sessions, on back-to-back days.

**Conduct the SRA**

The Consultant will convene and facilitate the SRA Panel.

**Document the Findings and Risk Treatment Strategies**

The Consultant will document the process and findings of the SRA, including the system description, hazards, risk determination, risk severity analysis, and risk treatment strategies. This document will become the checklist of items to be completed to ensure that the construction project is completed according to the findings of the SRA. It will be submitted to the Airport for distribution to appropriate individuals and agencies.

***Deliverables:***

All preparation, planning, meeting coordination, and facilitation of the SRAs, as well as documentation to support the Airport SMS program and FAA requirements, will be completed.

***3.26 90% Submittal***

Building on the comments from the 60% submittal and the SRA findings, the Consultant will update the plans, specifications: Engineers design report, and associated documentation for a 90% package. A Quality Control review will be completed along with a Constructability Review. The Consultant shall perform the following tasks:

**3.26.1 Project Plans**

The updates for 90% include the following:

- Update the horizontal and vertical geometry design.
- Update sheet notes and legends

- Update construction phasing plans and details.
- Update existing conditions plans using the topographic survey information and findings from the field verification task.
- Update preliminary airfield demolition plans for the project and coordinate spoil areas for removed material such as granular materials, concrete, structures, and lighting. Although the demolition plan design does not include design for removal or handling of contaminated or hazardous materials, notes will be provided on the demolition plans and safety phasing plans to direct the contractor on handling contaminated soil.
- Update horizontal pavement geometric layouts.
- Update Runway and Taxiway pavement profiles, elevations, and site grading plans for the proposed work.
- Update joint layouts and details
- Update airfield grading and drainage design including storm drainage profiles and details, and details.
- Update preliminary utility plans for relocation or reconstruction of utilities in the project limits.
- Update the pavement typical section for the runway and taxiways.
- Update pavement marking plans showing the layout of runway and taxiway markings. Coordinate with sign layout plans.
- Update soil erosion and sediment control design.
- Dimension lighting, signage, and conduits/ducts.
- Update lighting & conduit layout.
- Update any temporary jumper cable layout for phased construction.
- Update Junction Can, Pull Box, and Manhole modification/replacement details.
- Update light/signage identification and fixture installation schedule
- Update can & conduit installation/modification details
- Update electrical load calculations
- Update electrical vault equipment modifications
- Update ALCMS modifications as appropriate
- Update runway and taxiway design edge lighting and guidance sign layout and details. Coordinate with existing utilities
- Update installation details using previously approved standards for the airfield lighting and signage work elements
- Update airfield lighting and signage details and electrical manhole and hand hole details using standard details.
- Incorporate the comments as appropriate from the Contractor Information Meetings

The construction drawings highlighted following section **3.24 60% Submittal** of this scope of services. Those same plans are anticipated to part of the remaining submittals.

### **3.26.2 Specifications**

The Consultant will update the technical construction specifications according to the most recent FAA AC 150/5370-10H – “Standards for Specifying Construction of Airports” including FAA Standard and General Provisions along with Special Provisions as necessary for the project. In addition, the specifications will include COSA issued documents that will be included within the overall specification package. These will include at a minimum, bidding documents and information, City and Federal requirements and federal wage rates. The consultant will coordinate with the airport for this inclusion and any modification required for each package. Specifications will be coordinated and consolidated across all disciplines for the proposed project.

The 90% Specifications will include the following:

- Front End Documents
- Bid Proposal
- COSA General Conditions
- FAA General and Special Provisions
- SAT Supplemental Conditions and Security Plan
- Technical Specifications

### **3.26.3 Engineer's Opinion of Probable Construction Costs**

The Consultant will perform estimated quantity take-offs and prepare an opinion of probable construction cost (OPCC) based on current bidding climate and trends of material and labor prices. The consultant will also develop NAICS Codes for subcontracting opportunities and include this in the estimate. A contingency and a design evolution percentage will be included.

### **3.26.4 Engineer's Design Report (EDR)**

The Consultant will prepare an engineer's design report for each construction package that includes findings from the data collection and site visits, survey investigation and temporary monument locations, pavement design report, electrical load calculations, pavement geometrics, pavement markings, utility adjustments or conflicts, geotechnical reports, design parameters, preliminary layouts, sketches, any modifications of standards, and recommended final design criteria. The Consultant shall update text, graphics, and calculations related to the design elements for the EDR for each of the multiple bid packages.

The 90% Engineer's Design Report will include the following:

- Submit updated EDR with record of decisions and any changes or issues discovered since completion of the 60% EDR.

### **3.26.5 Construction Safety and Phasing Plan (CSPP)**

Consultant will prepare a CSPP and associated notes pertaining to the project work limits. Consultant assumes that one sheet with notes and details will be required for the overall phasing plan within this document. The FAA-required CSPP also will be prepared by the Consultant in accordance with FAA AC 150/5370-2G, "Operational Safety on Airports During Construction" (or latest version). The CSPP will consist of the phasing plans as well as an overall plan showing contractor haul routes and staging/stockpile areas with latitude/longitude coordinates. The CSPP will include narrative to document proposed compliance with the 19 categories listed in the aforementioned AC.

The 90% CSPP will include the following:

- Complete CSPP in accordance with the FAA outline

### **3.26.6 Constructability Review**

The Consultant will conduct an in-house constructability review of the 90% submittal prior to submission to the Airport. This review will include Consultant staff with construction experience that are familiar with aviation work. These staff will review the plans for constructability and new construction related items. Bluebeam software will be used by the Consultant to gather all comments in one general location. This information will be kept by Consultant for records.

### **3.26.7 Quality Control Review**

The Consultant will conduct an in-house quality control review of the 90% submittal prior to submission to the Airport. The quality control review will include members of the Consultant's staff for peer and constructability reviews who have had no involvement in the project but will be matched to their specific expertise to review the project efficiently. It is anticipated that Bluebeam software will be used to gather all comments in one general location. This information will be kept on file.

#### ***Deliverables:***

- Consultant will supply five (5) 11"x17" sets of Project Plans, with electronic copy to the FAA for review.
- Technical Specifications, with electronic copy to the FAA for review.
- Engineer's Opinion of Probable Construction Costs, with electronic copy to the FAA for review.
- Engineer's Design Report (EDR), with electronic copy to the FAA for review.
- Construction Safety and Phasing Plan (CSPP), with electronic copy to the FAA for review.
- All submittals will be placed electronically on the project web site
- Meeting notes distributed in electronic pdf format
- Tracking sheet documenting ongoing comments and action items

### *3.27 Issued for Bid (IFB) Submittal*

Building on the comments from the 90% submittal, the Consultant will update the plans, specifications: Engineers design report, and associated documentation for a IFB ready package. A Quality Control review will be completed along with a Constructability Review. All comments from this review will be incorporated into the final plan set.

#### **3.27.1 Project Plans**

The updates for the IFB submittal include the following:

- Update the horizontal and vertical geometry design.
- Update sheet notes and legends
- Update construction phasing plans and details.
- Update existing conditions plans using the topographic survey information and findings from the field verification task.
- Update preliminary airfield demolition plans for the project and coordinate spoil areas for removed material such as granular materials, concrete, structures, and lighting. Although the demolition plan design does not include design for removal or handling of contaminated or hazardous materials, notes will be provided on the demolition plans and safety phasing plans to direct the contractor on handling contaminated soil.
- Update horizontal pavement geometric layouts.
- Update Runway and Taxiway pavement profiles, elevations, and site grading plans for the proposed work.
- Update joint layouts and details
- Update airfield grading and drainage design including storm drainage profiles and details, and details.
- Update preliminary utility plans for relocation or reconstruction of utilities in the project limits.
- Update the pavement typical section for the runway and taxiways.
- Update pavement marking plans showing the layout of runway and taxiway markings. Coordinate with sign layout plans.
- Update soil erosion and sediment control design.
- Dimension lighting, signage, and conduits/ducts.
- Update lighting & conduit layout.
- Update any temporary jumper cable layout for phased construction.
- Update Junction Can, Pull Box, and Manhole modification/replacement details.
- Update light/signage identification and fixture installation schedule
- Update can & conduit installation/modification details
- Update electrical load calculations
- Update electrical vault equipment modifications
- Update ALCMS modifications as appropriate
- Update runway and taxiway design edge lighting and guidance sign layout and details. Coordinate with existing utilities
- Update installation details using previously approved standards for the airfield lighting and signage work elements
- Update airfield lighting and signage details and electrical manhole and hand hole details using standard details.
- Incorporate the comments as appropriate from the Contractor Information Meetings

The construction drawings highlighted following section **3.26 90% Submittal** of this scope of services. Those same plans are anticipated to part of the remaining submittals.

#### **3.27.2 Specifications**

The Consultant will update the technical construction specifications according to the most recent FAA AC 150/5370-10H – “Standards for Specifying Construction of Airports” including FAA Standard and General

Provisions along with Special Provisions as necessary for the project. In addition, the specifications will include COSA issued documents that will be included within the overall specification package. These will include at a minimum, bidding documents and information, City and Federal requirements and federal wage rates. The consultant will coordinate with the airport for this inclusion and any modification required for each package. Specifications will be coordinated and consolidated across all disciplines for the proposed project.

The IFB Specifications will include the following:

- Front End Documents
- Invitation to Bidders
- Bid Proposal
- COSA General Conditions
- FAA General and Special Provisions
- SAT Supplemental Conditions and Security Plan
- Technical Specifications

### **3.27.3 Engineer's Opinion of Probable Construction Costs**

The Consultant will perform estimated quantity take-offs and prepare an opinion of probable construction cost (OPCC) based on current bidding climate and trends of material and labor prices. The consultant will also develop NAICS Codes for subcontracting opportunities and include this in the estimate. A contingency and a design evolution percentage will be included.

### **3.27.4 Engineer's Design Report (EDR)**

The Consultant will prepare an engineer's design report for each construction package that includes findings from the data collection and site visits, survey investigation and temporary monument locations, pavement design report, electrical load calculations, pavement geometrics, pavement markings, utility adjustments or conflicts, geotechnical reports, design parameters, preliminary layouts, sketches, any modifications of standards, and recommended final design criteria. The Consultant shall update text, graphics, and calculations related to the design elements for the EDR for each of the multiple bid packages.

The IFB Engineer's Design Report will include the following:

- Submit updated EDR with record of decisions and any changes or issues discovered since completion of the 90% EDR.

### **3.27.5 Construction Safety and Phasing Plan (CSPP)**

Consultant will prepare a CSPP and associated notes pertaining to the project work limits. Consultant assumes that one sheet with notes and details will be required for the overall phasing plan within this document. The FAA-required CSPP also will be prepared by the Consultant in accordance with FAA AC 150/5370-2G, "Operational Safety on Airports During Construction" (or latest version). The CSPP will consist of the phasing plans as well as an overall plan showing contractor haul routes and staging/stockpile areas with latitude/longitude coordinates. The CSPP will include narrative to document proposed compliance with the 19 categories listed in the aforementioned AC.

The IFB CSPP will include the following:

- Complete CSPP in accordance with the FAA outline

### **3.27.6 Constructability Review**

The Consultant will conduct an in-house constructability review of the IFB submittal prior to submission to the Airport. This review will include Consultant staff with construction experience that are familiar with aviation work. These staff will review the plans for constructability and new construction related items. Bluebeam software will be used by the Consultant to gather all comments in one general location. This information will be kept by Consultant for records.

### **3.27.7 Quality Control Review**

The Consultant will conduct an in-house quality control review of the IFB submittal prior to submission to the Airport. The quality control review will include members of the Consultant's staff for peer and constructability reviews who have had no involvement in the project but will be matched to their specific expertise to review the

project efficiently. It is anticipated that Bluebeam software will be used to gather all comments in one general location. This information will be kept on file.

***Deliverables:***

- Consultant will supply five (5) 11"x17" sets of Project Plans, with electronic copy to the FAA for review.
- Technical Specifications, with electronic copy to the FAA for review.
- Engineer's Opinion of Probable Construction Costs, with electronic copy to the FAA for review.
- Engineer's Design Report (EDR), with electronic copy to the FAA for review.
- Construction Safety and Phasing Plan (CSPP), with electronic copy to the FAA for review.
- All submittals will be placed electronically on the project web site
- Meeting notes distributed in electronic pdf format
- Tracking sheet documenting ongoing comments and action items

*3.28 FAA Coordination – Reimbursable Agreements for Instrument Flight Procedures (RAs)*

This program will require a number of Reimbursable Agreements over the course of the program. The Consultant will prepare a draft RA letter for SAT to submit to the FAA. Consultant will schedule regular bi-weekly meetings in order to keep this process moving forward to obtain the approval as soon as possible. Consultant will work closely with Flight Procedure and Flight Inspection to ensure they have all required data to meet publication dates and commissioning flight inspections throughout the duration of the project.

***Deliverables:***

The Consultant will submit the draft RA request as detailed above to SAT in Microsoft Word format.

### **Part 3 Design & Engineering (Optional Services)**

#### *3.29 Public Notifications for Runway Closure*

Runway closures are subject to the FAA notice requirement outlined in 14 CFR Part 77. · In addition to the notice to the FAA, the Consultant will prepare one (1) postcard notice for distribution to the public, notifying the public of each planned runway closure due to construction.

#### *3.30 Construction Phase Noise Modeling*

In the event that construction activities require the closure of any runway for a duration longer than six (6) months, the Consultant will model noise impacts to determine the effect on the community during the runway closure. This effort includes a new future baseline for the year of closure; and two new modeling scenarios modified for one (1) the runway closure, and (2) the no-closure scenario in the same year. Two AEDT runs/analysis will be prepared, for noise only. Additionally, reporting and public notification specific to the construction extension will be included if this scope becomes necessary.

#### *3.32 Alternate Delivery Method - Specifications & Front End Documents*

The Consultant will update the technical construction specifications according to the most recent FAA AC 150/5370-10H – “Standards for Specifying Construction of Airports” including FAA Standard and General Provisions along with Special Provisions as necessary for the project. In addition, the specifications will include COSA issued documents that will be included within the overall specification package. These will include at a minimum, bidding documents and information, City and Federal requirements and federal wage rates. The consultant will coordinate with the airport for this inclusion and any modification required for each package. Specifications will be coordinated and consolidated across all disciplines for the proposed project. ***Should the project be solicited through an alternative delivery method, the Consultant will assist the Airport in developing alternative delivery criteria and special front-end provisions.***



## **Part 4 Bid Phase Services**

The Consultant shall provide consulting and engineering services as follows:

**Bid Phase Services** – This part will consist of preparing and issuing the bid packages, develop a construction industry outreach, attend and conduct the pre-bid meeting, provide clarifications to bidders, respond to written questions, prepare addenda, attend bid opening, evaluate the bids and the required documentation, and prepare a recommendation for award to the City.

For each construction package, the Airport/COSA staff will upload the IFB (bid ready) electronic submittal for advertisement to contractors. The Consultant shall assist the Airport in advertising, issuing bid sets to prospective bidders, receiving and evaluating bids for the project.

### *4.1 Bid Set Distribution*

Along with the Final Submittal, Specification, and Bid Set Distribution, the Consultant will assist the Airport/City with the invitation of Bids developed for distribution. This will include the development of documents submitted with the Bid Advertisement as well as written descriptions of each portion of the project to be advertised. For each design package and prior to the bid, the Consultant shall produce 10 full size copies of plans and specifications (1 complete set includes Project plans and Specifications), and provide information for online bidding through CivCast. Hard copies of plans will be made available to Contractors upon request, and the Contractor requesting the documents shall be responsible for reproduction costs. The Consultant shall maintain a list of plan holders who purchase hardcopy documents and provide to SAT at the end of solicitation.

### *4.2 Pre-Bid Conference and Site Visit*

The Consultant will conduct one (1) Pre-Bid Conference and associated site visit if required for each bid package with prospective bidders, subcontractors, and material suppliers and respond to questions, as needed. The Consultant shall review the draft agenda prepared by COSA for the Pre-Bid Conference based on the latest FAA AC's consisting of project overview of project scope and phasing details. The Consultant shall assist the Airport with preparing a presentation in Microsoft PowerPoint format based on the agenda prepared. The Airport will arrange for and provide the meeting room and chair the pre-bid meeting.

The Airport will provide vehicles and personnel to visit the site with prospective contractors. This field visit will be immediately following the Pre-Bid Conference. The Consultant will take notes during the Pre-Bid conference and specifically note verbal inquiries about the project from prospective bidders.

### ***Deliverables:***

- Review of Agenda prepared by COSA and a summary of comments and feedback
- Preparation of Pre-Bid Notes (verbal questions and discussion)
- Draft PowerPoint presentation submitted to Airport for review
- Final PowerPoint presentation submitted to Airport

### *4.3 Construction Contract Document Addenda*

The Consultant shall prepare addenda as necessary to update or revise the issued for bid drawings and specifications ("Construction Contract Documents").

The Consultant will respond to questions and Requests for Information (RFI's) received during the pre-construction meeting and in writing from the prospective bidders to clarify the intent of the construction contract documents. The response will be in a format suitable for publishing on CivCast. No questions or RFI's will be accepted after the last date for questions, as established by the City, in order to allow adequate time for preparation and distribution of the last addendum prior to opening of bids. The Consultant shall maintain a log of all RFI's and their responses submitted throughout the bid phase.

### ***Deliverables:***

Addenda in electronic format to the Airport in a timely manner. Upload of all Addenda's to projects File Storage Location.

### *4.4 Bid Opening and Evaluation*

The Consultant will assist the Airport staff in the selection of qualified and responsible Contractors for each construction project or package.

#### **4.4.1 Low Bid Evaluation**

The Consultant will attend the virtual bid opening. Once reviewed by the City/Airport, the information from the bid opening will be scanned and distributed to the Consultant for evaluation. The Consultant shall prepare the official bid tabulation spreadsheet in Microsoft Excel that will contain each bid proposal.

The Consultant will review the respondents' arithmetic, unit prices, and Contractor qualifications and report any irregularities or unbalanced items found to the Airport. Each line item will be evaluated based on overall conformity with other respondents. The Consultant will evaluate the respondents on their availability and ability to perform the work. This includes contacting the bonding company to assure that the limits of the projects can be met. The Consultant will review at a minimum but not limited to the contractor's men and equipment, the Texas and FAA debarred lists, Dunn and Bradstreet rating, and OSHA EMR rating. The Consultant shall prepare a letter of recommendation to the Airport documenting the apparent responsive and responsible respondents and recommending the responsible Contractor for award.

##### ***Deliverables:***

- Bid tabulation spreadsheet to the Airport in Microsoft Excel format
- Letter of recommendation to the Airport documenting unbalanced bid items, irregularities, alternatives or exceptions made by the Contractors; and recommending the apparent qualified and responsible bidder based on this review.

#### ***4.5 Bid Phase Final Deliverables***

The Consultant will provide all original documentation and necessary logs, deliverables and associated sign-in sheets, addenda, or other related materials.

Consultant will update the Project Plans, Specifications, CSPP and associated documentation for a final Issued for Construction (IFC) package for the Airport and selected Contractor. Consultant shall develop a conformed set of plans and specifications including all information as updated with each of the addenda.

##### ***Deliverables:***

- Final conformed documents representing IFC with any addenda items complete
- Five (5) 11"x17" sets of Project Plans, with electronic copy to the FAA.
- Technical Specifications, with electronic copy to the FAA.
- Construction Safety and Phasing Plan (CSPP), with electronic copy to the FAA.
- All sign-in sheets
- RFIs and logs
- Upload of all final documents to the Project File Storage Location

#### **Part 4 Bid Phase Services (Optional Services)**

#### ***4.6 Alternate Delivery Evaluation***

Should the project be solicited through an alternate delivery method, the Consultant will assist the Airport in the Contractor selection process in reference to the Contractor selection criteria. Consultant will attend the proposal distribution and review sessions, review Contractor proposals, and provide general recommendations (in verbal or written format) regarding the Contractor proposals.

Consultant will attend Contractor interviews as Advisory Personnel, and will participate and provide verbal input to the Selection Committee during Contractor interviews and during final Contractor selection.

The Consultant will review the respondents' arithmetic, unit prices, and Contractor qualifications and report any irregularities or unbalanced items found to the Airport. Each line item will be evaluated based on overall conformity with other respondents. Consultant will evaluate and score prospective Contractors based on price.

The Consultant will evaluate the respondents on their availability and ability to perform the work. This includes contacting the bonding company to assure that the limits of the projects can be met. The Consultant will review at a minimum but not limited to the contractor's men and equipment, the Texas and FAA debarred lists, Dunn and Bradstreet rating, and OSHA EMR rating. The Consultant shall prepare a letter of recommendation to the Airport documenting the apparent responsive and responsible respondents and recommending the responsible Contractor for award.

##### ***Deliverables:***

- Bid tabulation spreadsheet to the Airport in Microsoft Excel format

### **Part 5 Construction Phase Services**

The Consultant will develop a proposed scope and fee to meet the needs of each package that would be bid that specific year. The Scope of Work will include but not be limited to: Construction Management Program, Pre-Construction Meeting, RPR Services, Site Visits, and Observation of Construction, construction progress meetings, review quality control (QC) testing, observations and tests, shop drawings and samples, review and respond to Requests for Information (RFI's),prepare Consultant's Supplemental Instruction (CSI), recommendations with respect to Defective Work, Change Orders, substitutes and "or-equal", Applications for Payment, review and monitor Construction Schedule, disagreements between Contractor and Airport, prepare FAA Weekly Progress Reports, Substantial Completion, Final Completion, Review Operation and Maintenance Manuals, construction phase hazardous materials testing

### **Part 6 Project Closeout**

The Consultant will develop a proposed scope and fee to meet the needs of each package that would be bid that specific year. The Scope of Work will include but not be limited to: Prepare record drawings, record drawing AGIS conversion, update utilities GIS database, attend close-out conference, prepare close-out report, perform warranty observations and documentation, attend grant closeout meetings